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ABSTRACT

Presented are 48 short, selected convention papers (conference reports) on different aspects of educational needs in various exceptionalities. Five general papers precede two papers on international aspects of special education, two papers on administration, and six papers on auditory impairment, in which representative topics include educational and vocational guidance of the deaf and an auditory approach to the education of deaf children. Representative topics among the seven papers on visual impairment include a comparison of the imaginative productions of congenitally blind and seeing children to structured auditory stimulation and promoting mental health in teachers. Following are eight papers on mental retardation; selected topics discussed are some research problems in programed instruction and training of visualizing ability by the kinesthetic method of teaching reading. Four short papers are presented on the gifted and four on speech, language, and communication. Learning and learning disabilities are then discussed in six papers, while behavioral disorders are examined in four papers, and rehabilitation is covered in two papers. (CB)

INSPECTION AND INTROSPECTION
OF SPECIAL EDUCATION

Selected Convention Papers

42nd Annual CEC Convention

Chicago, Illinois

March 31 - April 4, 1964

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GENERAL SESSIONS

THE SWORD AND THE SPIRIT

Frances P. Connor

The title, "The Sword and the Spirit," represents an attempt to relate the story of special education's movement to perfect its effort. This presentation is also the rendering of a dream and a promise — a personal special education credo. It is a snapshot of the past and a suggestion of the future of the education of exceptional children as viewed at the end of a presidential year abounding in opportunities to meet CEC members in various settings.

Today, as throughout history, man's efforts to better himself can be told through references to the quest for and use of the sword and the overwhelming influence of the spirit. Emerson expressed it in one form when he said, "Mankind is divided between the party of Conservatism and the party of Innovation, between the Past and the Future, between Memory and Hope." Spencer and Malory expressed this wedding of the divisive elements of action and persuasion as King Arthur's Knights of the Round Table rode in search of the Holy Grail. The man of action (the sword) was seeking the ultimate in idealism (the spirit). In *Profiles in Courage*, Kennedy depicted courage as the spirit and politics as the sword. Thus he spoke of courage or "grace in action" as noteworthy because this most admirable of human virtues became strikingly evident in times of stress or periods of indecision and crisis.

Legends teach us that from the first of the Pharaohs to the last of the Mohicans, one of man's earnest quests was for a *sword* to vanquish his enemies and obstacles. Balmung was Siegfried's sword which slew the dragon Tafnir; Durendal was the sword of Roland, greatest warrior of Charlemagne; Excalibur was the invincible weapon of King Arthur; and all of us recall Snickersnee, the blade of Koko, the Lord High Executioner in Gilbert and Sullivan's "The Mikado." In the new world history, it became the Indian tomahawk and the exploits of the Bowie knife and the explorer's reliance upon the machete.

The quest of the *spirit* also appears throughout the pages of recorded history. The spirit to which reference is made here is represented by the Holy Grail of King Arthur, the rebel yell of the gray during the Civil War, the "Geronimo" of the World War II parachutists, the "crusading spirit" of Eisenhower, the "sweat and tears" of Churchill, the "courage" of Kennedy, the "New Deal" of Franklin Roosevelt, the "equality, fraternity and unity" of the French Revolution, and the "Minute Men" of America's Revolution.

Under the heading of "The Sword and the Spirit," attention can be directed toward special education also. In today's western countries the pattern of events during the past few decades affords ample evidence that this may be one of the most revolutionary ages men have yet faced. Our world appears to be entertaining a series of impending revolutions — automation, internationalism, space flight, modern technology, one-worldism, miniaturization, atomic power, oceanography, memory banks. All of these and more are changing our way of life and our mode of looking at things. Modern life is changing fast, and special education is changing more swiftly than many other fields.

The story of special education on this continent is about 150 years old. Early programs served the deaf and the blind and the mentally retarded. Throughout the first 75 years, a network of residential programs stressed the care and sometimes the education of the handicapped. Large cities then took up the organization of educational programs for the retarded and the physically handicapped and gradually expanded to include the necessary services of psychologists, therapists, and guidance workers in addition to the teaching and administrative functions of the special education program. Since World War II, the strength of parents, government agencies, and beginning research efforts have been added.

Behind these manifestations of the sword, depicting the march of desirable expansion of the services for exceptional children, lies the inner world of the spirit, the motivations and the ideals of the past leaders of the special education movement. Thus, on the brink of our new special education revolutions, we acknowledge the debts owed to the past revolutionists for what was accomplished through the actions and dreams of Gallaudet and Alexander Graham Bell, of Howe and Perkins, of Itard and Seguin, of Binet and Knight, of Graham and Wallin.

Within the growth of educational provisions for exceptional children are rather specific directions which related revolutions appear to be taking. Five special education revolutions seem particularly fruitful for discussion in terms of the sword and the spirit.

Revolution Number 1: Special educators are to be liberated, not "trained."

During the past decade, the need for highly qualified teachers has been highlighted through the activities of many of our special education leaders as they exemplified the interaction of the sword and the spirit. Mackie and hundreds of special educators studied on a nationwide scale the appropriate preparation for personnel in various fields of special education. The Office of Education has continued in a variety of ways to carry forth this effort. CEC has also moved into this area. In 1959, for example, a legislative policy was developed that included a pledge to seek federal support to increase the number and quality of teachers and other special education leaders. But the quality and effectiveness of this basic special education commodity, the teacher, must be improved and strengthened as the quantity and availability grows.

Preparing teachers, as suggested by Maritian, calls for liberating them to learn continously through their acquisition of basic knowledge, development of critical thinking, and interpretation of situations in light of evidence. Such an approach, as opposed to providing future teachers with blueprints designated as universally applicable for all children with a common diagnostic label, reflects the spirit of experimentation, intellectual curiosity, systematic study, and willingness to apply appropriate research findings. Teachers need the professional freedom to affect program change and apply what appear to be sound educational approaches even though they are experimental and new. They must be able to take chances when they have hunches and evidence for new techniques, new materials, new evaluations.

For example, attention is being given to educational diagnosis in many of our progressive school programs. This thoughtful and searching kind of teaching highlights individualization of program by teachers equipped with unprecedented spirit and action. The opposite of this spirit of inquiry is the high value placed upon the status quo under the tried and true method or upon the organizational and administrative practices that were adopted by former generations.

If special education is to recruit teachers who are creative, courageous, imaginative, intelligent, sensitive, and personable, there is need for both preservice and inservice direction in applying these assets in a school setting.

The most effective professional worker appears to be one functioning with precision, with increased autonomy and opportunity for decision-making relative to what and how to teach. With teacher educator's focus on liberation through preparation for assumption of responsibility in approaching educational tasks, special education's revolution will be toward restructuring of most teacher education programs and reviewing the patterns of teacher placement, supervision and professional regard generally. Proposed here is increased emphasis on providing children with thoughtful, inquiring, receptive professional educators rather than with trained teachers concerned with forcing children to "hold still while being taught what has been specified," thus preventing the liberation of exceptional children capable of forging ahead intellectually.

Revolution Number 2: Special education depends upon an intensive infusion of new knowledge, not the perpetuation of past practice.

While special education owes much to physicians and psychologists as its early innovators, efforts are being made to define the field in terms of its unique professionalism. Attention is being directed toward differentiation of education from therapy and from counseling, yet also toward recognition of its role *in* therapy and counseling. Stevens, Jordan, and others have attempted the development of taxonomies to assist in traveling through the maze of terminology relative to the education of exceptional children. The need for further clarification is evident; there is a rapid emergence of rather distinct professional roles for supervisors, administrators, researchers, and college personnel in the field. The number of doctorates in the education of exceptional children is increasing. In general, the bearers of this badge are leaders concerned with both theoretical and concrete problems; particularly encouraging is the continuation of research efforts in the field by competent investigators with an educational orientation and commitment. Well-known are the works of Cruickshank, Kirk, Dunn, Gallagher, Morse, and Rosenstein in exploring teaching-learning processes.

Evolving also is indication that educational practice is undergoing examination from within the field and that highly competent educators are viewing their field in a more reflective manner and are seeking new objectives in education including revisions in theories of learning. The release from habitual routines in instruction and from the need for identification with a related "status" scientific area is reflected in recently apparent willingness to experiment, to try previously unemployed techniques and methods, and to utilize appropriate scientific findings. Among the important areas of advance has been the use of programed learning and self-instructional machines. Abraham, Stolurow, Blackman, Birch and Stuckless, and others have made a few special education in-roads in this area. The work has just begun, however, and the continuing "explosion of knowledge" must be translated into realistic techniques and materials.

Focus on instruction can be further realized through the new Public Law 88-164 which provides for concentrated professional preparation and earmarked funds for research and demonstration in the education of handicapped children; they are available to representatives of any nonprofit institution with an approved proposal. CEC's members worked hard for the development and passage of this bill; we must now assure top quality implementation for the improvement of education for handicapped children.

Further, an important aspect of this revolution is related to general education's movement. For example, NEA's report, *Schools for the 60's*, an interdisciplinary contribution, recommends that a minimum of one percent of school budgets be designated for the support of research, experimentation, and innovation. It also urges the establishment of regional curriculum and instruction centers in universities and in state departments of education. Positive action on these and other proposals could result in major educational breakthroughs.

Revolution Number 3: The basis of effort is hope, not preconceived limits.

It remains fundamental to my outlook for special education that the world in which we live is an arena of work and effort (the sword) where human needs and dreams (the spirit) can be sought and sometimes achieved. One of the most radical of great revolutions is the idea of progress, of the possibility of man's best activity leading to a better world in the here and now as a well as the hereafter.

In traveling through the countries of the Far and Middle East, one becomes aware that Westerners view the world differently from the Easterners — for example the Buddhists who indicate that endless recurrences are fixed by destiny. The Judeo-Christian Messianic message was one of love (of the spirit) but its gospel was preached through hope (of the sword) by reference to the use of talents — the creed of energy, change, betterment, and work. And so today we have the world revolution of rising expectations, the discipline of service to others, the interdependence of all humans — the union of the sword and the spirit which has one of its greatest embodiments in the full development of the handicapped and the gifted which so many other cultures, countries, and men have ignored.

Based on recent research and observation, some special educators are proposing a review of present methodology and specified curriculum content. They question seriously the programs built on the proposition that children should be exposed only to what is deemed within the pupil's grasp. Earlier educational endeavors were directed toward children who were taught what the instructor offered.

Special education's being is founded in the need to assist children who required something different from the ordinary in order to conform or achieve what was deemed the ordinary. As the challenge is increasingly accepted, so is the freedom of professional action. In education generally, children are being given opportunity to act; educators setting the stage for this action are seeking information about what children can learn, what they learn with ease and what they learn with difficulty, and why. Emphasis appears to be upon unifying concepts, principles, and modes of inquiry; focus is on thinking and habits of thought, not routine absorption of specified isolated informational tidbits. Thus, with recent encouragement from Bruner, Goodlad, liberal art scholars, and even over-generalizing critics of the schools, educators of exceptional children are being forced to stretch themselves and their pupils. To stimulate their development, children will be required — through precise communication of concepts with which they have become familiar through their own action — to test these concepts through the use of a variety of materials, carefully selected for their use in varying situations, and to correct and refine their generalizations. The science of pedagogy in special education is coming into more prominent focus.

Implementation of programs of this nature can be realized only when the teacher has hope of his pupil's growth and function at increasingly higher levels, when he dares to permit the learner to act and to explore, and when he defines step-by-step content which he carefully arranges in the setting for the pupil. Curriculum divisions and boundaries are for the teacher's planning, measurement, and program evaluation; they are not for the child whose function is to respond and learn.

With the view of retardation as a symptom, with recognition of multiple deviations in children and of the gifted child as one who also needs to have satisfaction in active learning and content planned to fit into a consistent and unified whole, hope in the teacher is restored. Preconceived and limited expectations can be minimized; stereotypes will be shaken. Attention will be directed toward the learner's action and the teacher's strategy in children's progress — not on his testing to note failure.

Nor is the aspect of hope confined to work with children. The new revolution also touches the college and university faculties as well as supervisors responsible for preservice and inservice preparation of teachers and other special educators. With the creation of a more unified intellectual environment, hopefully, disciplined thinkers easily stimulated to creative action will emerge as teachers of children who require a special education. Their positions in and out of our profession will also reflect hope in that the conviction of the uniqueness and achievements of special education will be based upon accomplishments and objective knowledge rather than upon a compulsive response to a social need.

Revolution Number 4: Improvement of education for exceptional children is a cooperative endeavor, not a power struggle.

With present opportunities to upgrade educational services for exceptional children, we have no right to curtail or misdirect action and energy in order to promote what appears to be the prestige of a field, an organization, or person. Well recognized was the gradual transfer of leadership from the physicians to the hands of educators. Well known also was the dissipation of efforts in some areas upon the enforcement of compulsory education and in response to social reform as a few highly personally committed and successful practitioners working with handicapped children were replaced by many dedicated but somewhat less scientific educators attempting to fill a gap. As programs grew, need for multidisciplinary evaluation and programing became increasingly evident; many special educators defined their role and eventually earned team membership. In the new role there have appeared evidences of a jealous guarding of professional jurisdiction, methodologies, and even information, creating an exclusiveness to protect the sanctity of personal or organizational vested interests.

Increased dialogue and consideration of problems as through CEC's interagency committee; the Mackie, DiMichael, and Dablestein bulletin on mentally retarded youth; the national rehabilitation and special education conference held in Chicago recently; and projects such as the Columbia Teachers College effort to identify vocational rehabilitation content in teacher education as well as CEC's and other projects related to classes for the emotionally disturbed which are sponsored by the National Institutes of Mental Health — all will help to break down barriers to communication and to comprehensive programing for exceptional children and youth. Special educators are not to seek expanded power and jurisdiction at the expense of other professions which are effectively rendering service to exceptional children and youth. The cooperative efforts of special educators and interested members of the medical, scientific, and behavior science fields can add a glorious chapter to the improvement of life for exceptional children.

Noteworthy in the revolution of cooperative enterprise is the comprehensive legislation of 1963 and the overwhelming unified effort which has resulted in advantage to each of the areas. A recently apparent gesture of cooperation is the willingness of the University of Illinois, the American Speech and Hearing Association, state departments of education, and local school systems to lend their highly regarded personnel to initiate the new federal program in the education of all handicapped children.

Progress for all areas of exceptionality is progress for each. The other side of the coin should also become a conviction, i.e., progress in knowledge and techniques in one area of exceptionality should be shared and tested in others. The question arises as to whether a specialist in any area can afford to remain isolated in the future. Even greater, then, is CEC's need to provide opportunities for exchange of information, joint enterprises, and idea testing. With a growing professional confidence, freedom for cooperation will emerge.

Revolution Number 5: The status quo is to be evaluated, not treasured.

According to Bacon, "He who does not apply new remedies must expect new evils." Thus we stand on the threshold of a new era that must not be diluted by blind clinging to what has been done in the past. We cannot afford to be caught up in a rhetoric of self-congratulations about our successes in new legislation or expanded programs or new technological advances.

Some people resent change; others welcome it. The danger of indifference and a narrowing of the arteries which lose contact with the urgent desires of the mass of children needing help may be inherent in noted accomplishments, in increasing quantity, and in new legislation. It is not, however, a law that the wealthy must grow complacent. Granted, some of us appear to believe that without personal effort some deus ex machina is certain to emerge to help us. I suspect, however, that more probably, those who will, and want, and work are more likely to see their plans and visions materialize.

The present reality of special education includes a growing and strengthened professional membership, funds for the best training programs possible and for research in the field, and a CEC vehicle for specifying standards for programs and personnel. Neither our problems are solved nor our objectives realized. They are but clarified. Educators of exceptional children cannot be satisfied with a diet of clichés about improvements; these can rather be counted on as being permanently hostile to innovation, style, experimentation, daring ventures, and idealism. The impulses of the sword and the spirit are aching to break out again and again to launch special education into a new and more ambitious epoch.

It hurts to read in a British journal that special classes for the mentally retarded in the United States are valueless. But the spirit of inquiry and the self-appraisal represented in the reported studies warrant positive comment. We have no right to be discouraged by reversals. Better that our mistakes be those of effort and reasonable action than the mistakes of complacency. We need more bold and imaginative ventures into having the deaf, for example, use language as a supple abstract tool of thought rather than the stereotyped, primitive skill the majority of them now command.

Some general strategy is needed, i. e., a sustained planned effort of growth through time — a five or ten year plan — a "big push" sparking. The first step must be personal — a CEC commitment and common obligation, a sharing — for the family of man with use of the resources of vision and faith as well as the ardours of our spirit. When the present is viewed as the fleeting moment, flowing into the past, we can no longer be satisfied with what is.

The changes in child population relative to ability range, complexity of deviation and educational needs dictate continuing evaluation, alteration of referents, and redifinition of effectiveness. They dictate also need for continuing self-appraisal, self-renewal and confrontation of the real and the ideal. In this rapidly altering world, the elder statesmen need revitalizing — the young rebellious professional worker needs opportunity for constructive outlets.

Despite dissatisfaction with the status quo, Gardner warns that "... a mood of wise and weary disenchantment may seem wonderfully mature, but it does not account for much of the growth and movement and vital action in the world." The responsibility of the special education leader is great when we consider that habits, moral judgments, and attitudes are learned in the routines and crises of living — that the learning power of imitation and emulation, of identification with a hero, an idea, and a model is immeasurable. Thus, the increased number of full time special education students will have opportunity to immerse themselves in a profession prior to service in the field. There will be opportunity to identify with leaders as they solve problems, check, evaluate, discuss, and teach. Hopefully, there will be opportunity to question without censure — to face precept and practice. The college faculty in the meantime will be forced to keep alive, to learn anew, and to reform any tired course offerings.

Clearly, special education is not an institution to be maintained with minimum effort. Each of us is wielding an influence on its direction of change. Granted, this is a call to accept responsibility, but in addition, it is a call to a field's leadership in cutting new pathways for exceptional children — and further, to affect world change in their behalf.

These five revolutions constitute a challenge to special education in a changing society. Through the years CEC's sword and spirit have been reflected in its members' action. Suffice it to recall Mr. Harley Wooden's maintaining the Council in his own home during the sparse World War II years until its movement to present headquarters in Washington, D. C., in 1950. At that time its membership was less than 6,000; in 1964, we anticipate over 18,000 active CECers.

While personal motivations differ and amounts and kinds of individual participation vary, the heart of the Council rests within the sphere of intense interest in the individual child and in the promotion of improved programs for his teachers. The spirit of CEC's staff and the board of governors, as well as of its total membership, sparks and directs the use of its sword in action. Because of this, the Council has actually written legislation, testified before the committees of the Senate and the House, and has lobbied for passage of appropriate bills. Because of this, special educators are encouraged to dare to do.

Special education's spirit and sword will be operative as it reduces the barrier of misleading medical and psychological labels such as "mental retardation" and "cerebral palsy" which mean very little to teachers unless objective tools and clinical judgments are used for educational differential diagnosis which identifies teaching-learning elements of the child's difference from the usual. The qualified leadership personnel made possible through the new federal fellowship programs will apply to knowledge and action as they move to college and university faculties, local school districts, and state education departments. Adequate preparation prior to accepting a position as teacher or administrator will prevent some unnecessary errors in practice and in the first year of teaching or administration. It will also avert the loss of sensitive and creative personnel discouraged because of failure to achieve unrealistic goals.

The coming decade should bring the wedding of the two major paths of research and service wherein young researchers committed to the education of exceptional children will be integral parts of campus and community schools. Then too, teachers preparation will no longer be isolated in a special residential school or confined to the "untouched" college lecture hall. Our complaints must be that we have not achieved enough, that our turmoil and our effort need redoubling, that the struggle without end is possible only through both the sword and the spirit.

As the CEC membership develops and adopts standards for its field's programs and levels of professional personnel, it will be able to qualify its membership. Mediocre special education will gradually be abandoned through general recognition of the field's evaluation of its own offerings. Certification of personnel will move toward a more obvious joint enterprise with state authorities, university advisers, and employing school districts participating. Professional behavior will increasingly be viewed in terms of agreed upon ethical standards and moral judgments. These movements require courage, conviction, and a sense of responsibility in decision making.

With the field and the world as a whole changing so rapidly, we will see experienced special educators returning to the life of the campus — to be recharged — revitalized — and brought up to date. Postdoctoral study will be required for those with inadequate research skills. Practitioners need to test practice; they need to experiment and to acquire a "nerve of failure." Particularly encouraging is the appearance of specialists in fields such as sociology, psychology, educational audiology, neurology, and anthropology with vital interest in exceptional children. These special education faculty members will aid in the utilization of the rapidly expanding body of knowledge for the changing school population and in expanding school offerings. They will encourage special education's progress as they add vigor and promise to a field anxious to view its own performance, to measure its ideals against the realities of its actions. We may look forward to continued ferment, bold thought, and meaningful action as we cut across accepted barriers and break with tradition. With the sword and the spirit we face tomorrow through what the world will be and what it needs are not clear. We are the makers of the trends. We have among us in the great and in the near great and

and the oldest and the newest members of our organization those whose action and impact will touch off the fulfillment of dreams of parents, children, and educators of exceptional children.

STIMULATING SPECIAL EDUCATION THROUGH FEDERAL LEGISLATION

John E. Fogarty

I welcome this opportunity to speak before you who are dedicated to work among the handicapped and the gifted. The Nation owes you a debt of gratitude for devoting your intelligence, energy, time, and drive to serving our children who have difficulty making adjustments in their homes and in their schools. The test of our democracy is not how many cars we have, or how many refrigerators we sell, but the reach and range of the opportunities we extend to all young Americans. In this test of democracy you truly and admirably serve.

In our country we have learned that the vitality of our industry and our government, of our domestic and our foreign affairs, always finds its taproots in the education of our citizens. We have seen at home and abroad that nations of high literacy generally obtain their social and economic goals by reasoned evolution, while in lands where revolution is needed for change the people very often are poorly educated.

Our present and future strength clearly rests on the education of all, the best education our society can provide — to the slow-learning child as well as the fast-learning child, to the hearing child and the deaf, to the seeing child and the blind, to the emotionally-stable child and the emotionally-unstable, to the child who can easily communicate and the child who has not developed the skills of communication.

Failure in our country today to educate all our children to their full capacity is a guarantee of trouble tomorrow. In World War II we saw indelible proof of the havoc created by neglect of adequate universal education. Seeking healthy, educated men for the fortress of freedom, we found vast numbers who were educationally retarded. The military was then forced to establish emergency schools in camps throughout the country. More than 380,000 soldiers admitted into the army were functionally illiterate and had to be taught to read.

Today the same pattern prevails among those rejected by selective service. Today the physically, mentally, and educationally handicapped, including the school dropouts, are found in formidable numbers among the unemployed and on the public assistance rolls. This is the unhappy harvest of our neglect.

I have long recognized and happily many of my fellow congressmen recognize that the health and educational strength of our citizens form the keystone in the arch of our progress and our greatness. We may spend billions on reaching the moon and succeed, but can we justify our failure to reach millions of our handicapped children here on earth? I say it is high time to replace neglect with the significant advance in the education of our handicapped and gifted children.

Education in this country has been, and rightly so, the role of the local community. But local districts often lack the means of providing adequate education for all the children of the community. As a result, state governments support local schools partially or in large measure. When local and state governments are unable to educate some segment of the population, the federal government may temporarily assume responsibility.

Among our handicapped and gifted children, educational progress has been slow. The cost of educating a handicapped child, I am told, is from two to four times as great as the cost of educating the average child. When states began to subsidize local school systems for the organization of classes for handicapped children, they found that they were short of classrooms, short of professional specialists, short of teachers to instruct these classes.

The Office of Education estimates that today we have approximately 50 to 60,000 special teachers for handicapped children in the United States, but that we need 200,000 such teachers if we are to give adequate educational opportunity to all handicapped children. The reports we receive in Congress consistently tell us that classes are being organized faster than colleges are training specialized teachers to man them.

Federal Stimulation to Special Education

We in Congress have recognized that this is an emergency situation requiring federal assistance, that progress is slow and that much remains to be done. But we have made some promising beginnings.

Federal aid to handicapped children is not new. Congress has appropriated funds for the Public Health Service for many years. In 1946, the National Institutes of Health were organized to conduct research and to train research workers in health and mental health, with special emphasis on the handicapped. The health of the handicapped has received substantial Federal support.

Now I will admit that it has been traditionally easier to pass legislation for health than for education. One reason, of course, is that education is considered a state and local function, and attempts to improve education through federal assistance often meet with resistence. In recent years, however, this resistence has been slowly giving way.

Probably most of you know of the Cooperative Research Program of the U. S. Office of Education, a long-range and most hopeful effort. In 1957, one million dollars was appropriated for this educational program. Initially, two-thirds of that appropriation was earmarked for work in mental retardation. Since then approximately 8 million dollars has been awarded for projects to improve the education of the mentally retarded, the physically handicapped, and the gifted.

In 1959, a training program directed toward mental retardation was created through Public Law 85-926, with the appropriation of one million dollars a year to train teachers of these handicapped youth. The U. S. Office of Education reports that by the end of 1964, 835 fellowships will have been granted to 560 individuals under this law.

In 1961, another Federal program for educating the handicapped was launched. This was provided for by Public Law 87-276 which appropriated one and one-half million dollars to train teachers of the deaf. At that time, we in Congress were informed that the shortage of teachers of the deaf was severe and increasing at an alarming rate, and that federal intervention to increase their ranks was a necessity. In the two-year period from 1962 to 1964, 942 scholarships were awarded to students preparing to become teachers of the deaf.

The Cooperative Research Program and the teacher-training programs for the mentally retarded and the deaf were a modest but important beginning. Much effort was expended by associations, citizens groups, and congressmen to enact these laws. The dynamic impetus for further advances came through the efforts of President Kennedy. In his messages on health and education, he led the way to greater undertakings.

New Legislation in 1963

Congress responded dramatically to this leadership last year with the most significant educational legislation in the whole history of the Office of Education, now nearly 100 years old, and with landmark measures to aid the handicapped.

Among the major legislation passed in 1963 pertaining specifically to the handicapped are Public Law 88-156, entitled Maternal and Child Health and Mental Retardation Planning Amendments of 1963, and Public Law 88-164, entitled Mental Retardation Facilities and Community Health Centers Construction Act of 1963.

The first of these measures, Maternal and Child Health, was signed by President Kennedy on October 24, 1963. It was formulated to prevent and combat mental retardation in these specific ways:

— It provides funds to assist the states in planning comprehensive state and community action programs for the mentally retarded.
— It provides project grants for maternal and infant care.
— It increases maternal and child health services.
— It increases services for crippled children.
— It provides grants for research to improve maternal and child health services.

The second law, entitled Mental Retardation Facilities and Community Mental Health Centers Construction Act of 1963, was signed by President Kennedy on October 31, 1963. It appropriates approximately 329 million dollars over a five-year period for these purposes:

— It provides for the construction of research centers and facilities relating to mental retardation.
— It provides for construction and establishment of community mental health centers.
— It provides for training of teachers of handicapped children.
— It provides for research and demonstration in the education of handicapped children.

In the training of teachers, the law is broader and more comprehensive than previous legislation. It provides for training in all areas of the handicapped and at all levels of preparation — from teacher training to the training of college instructors, research personnel, and the administrators and supervisors of teachers of the handicapped.

In addition to the training of personnel, the new legislation also provides a broader base for research and demonstration in the education of handicapped children. Under the Cooperative Research Program, grants are made only to institutions of higher learning and to state educational agencies for research and demonstration. The new law extends these grant provisions to public and private school systems, and to nonprofit public and private agencies dealing with handicapped children.

Future Goals

I have spoken of federal programs now in effect to serve our handicapped and retarded children. Now let me turn to a no less important need — the improved education of America's gifted children.

Congress did not include the gifted child in its 1963 legislation. This does not mean that the Congress lacks interest in gifted children, but that we have not yet determined the role of the federal government in promoting higher quality education for gifted children.

Here the Congress and the educational community still have their homework to do — to arrive at specific proposals defining the role of the federal government. Should we at the federal level provide funds for developing materials and curriculums for the gifted? Should we support training grants for the preparation of teachers? What kinds of professionals are needed and for what kinds of programs? Should we start with the preparation of teachers of gifted children as we have with the preparation of teachers of the deaf? Or should we begin by supporting programs for leaders and supervisors of teachers?

I am aware that fine work is now being done in various parts of the country, particularly in the higher socio-economic areas, in identifying gifted children and adapting programs for them. I am also aware that a far larger proportion of gifted children enter college today from these higher economic areas than from our lower economic levels. These gifted children of the well-to-do are more easily detected from their IQ scores and school grades than children who potentially may be gifted but because of poor home and neighborhood environments and poor motivation for learning fail to score high on conventional tests. What can we do to detect these potentially gifted, to strengthen their opportunities for learning, to salvage these rare and overlooked children who could otherwise contribute so greatly to our national wellbeing?

I would be interested in receiving proposals to assist the nation in identifying the full range and number of our gifted children and proposals to act upon this knowledge — both among the advantaged and the disadvantaged of our society. These children are truly a vital human resource. To waste their potential — to neglect this latent wellspring of strength — is to perform a shameful disservice to these children and to the future of us all.

Tonight, in reviewing with you some of the federal legislative programs for the exceptional child, I would add that the role of Congress is a limited one. We can pass legislation for the handicapped and, hopefully, soon for the gifted. We can appropriate funds. We can encourage the development of programs across the country. But the big and fundamental task begins and ends with you — with the creative wisdom and talent you bring to bear in your own schools and your own communities.

We in Washington cannot organize these programs for you. We cannot carry forward the needed research and development. We cannot develop teaching procedures for handicapped or gifted children. But we can make it possible for you to do a better job and this we assuredly should do. Specifically, through legislation, we can hope to stimulate these major results:

— First, to increase the cooperative efforts of the federal government with state educational agencies, with local school systems, with institutions of higher learning.

— Second, to encourage the development and strengthening of special education in our colleges and universities.

— Third, to make possible the selection of the most qualified individuals for these special fellowships and traineeships.

— Fourth, and last, to increase not only the quantity but also the quality of instruction for these handicapped and gifted children who deserve the best that we can provide.

Now, in conclusion, I wish to pay tribute to you for your dedicated work, to my fellow congressmen for their legislative vision, to President Johnson for his strong and continuing interest in the education and health of the handicapped, and, finally, to the memory of the late President Kennedy for the legacy of ideas and programs which he has left to us to carry forward. It is befitting at this time to quote from the January issue of your own journal, Exceptional Children:

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"The least any of us can do in the memory of John Fitzgerald Kennedy is unselfishly to double our efforts to prevent handicapping conditions in children and to educate and rehabilitate all the handicapped children in our society. This is one substantive measure which we can take so that the eternal flame which now burns in Arlington Cemetary may illuminate the lives and spirits of handicapped children throughout the land."

THE HANDICAPS AND GIFTS OF SPECIAL EDUCATION

Archibald B. Shaw

This is a bold thing you are doing in submitting yourselves to comments on special education from a variety of perspectives. This kind of boldness — asking someone to tell you how you are doing — is either a desperate plea of the insecure or a highly mature act by people who believe they will profit from an outside view. The history and present status of your important segment of our common profession inevitably requires the latter supposition. I salute you for it.

In return I can only promise to try not to be like the young college graduate who sat at a dinner table beside an elder statesman. In an obvious effort to make some sort of bright conversation she asked her companion what he did. He modestly replied that he studied sociology. Her rejoinder is the prototype of all too many outside speakers at conventions like this. She said, "Oh, I finished that last year." In your special fields you are too often put in the position of the distinguished sociologist.

Warren Weaver once helped make clear how people who have studied long and hard can be so ignorant. "Imagine," he said, "that you are parachuted into the middle of a jungle, armed with a machete. As you look about you, slashing down the underbrush and making an ever larger clearing, you are constantly increasing the circle of what is known and familiar. At the same time you are steadily increasing your awareness of how much remains to be done and your contact with the unknown." This may account for the assumption by people like Admiral Rickover, to cite a much-abused example, that the narrow little circle into which he has so recently parachuted equips him to preach to those of us who have long been hacking away at an ever-growing perimeter of expanded knowledge and greater understanding of what is still unknown and uncertain.

I come to you, then, not as one who has finished with special education, but as a thirty-five-year veteran of immersion in education. Naturally, I cannot shuck off my personal experiences as a father, husband, brother, or one in any other role. But basically I do come as a fellow educationist — one who believes in, studies, and has made his major life work in the field of education. Perhaps more particularly I come as an administrator, held responsible by the people in the community for a total educational program, and more recently as an observer of all of education.

You should know more than this; you should know my prejudices. I have lots of prejudices — of course I call them convictions. I'll name only a few which you may need to help you understand what colors what I have to say.

First of all, I believe in education as an investment as well as a societal responsibility. The only capital that counts is the capital that comes from the growth of the individual's worth, his wit, his will, and his wisdom. This means that I am irrevocably committed to the best education rather than to the cheapest.

Secondly, I believe that education is intrinsically and inescapably human. To me this means that much of the best learning is caught rather than taught, and that the arrangement and organization which puts concerned and competent adults in meaningful and continuing relationships with children is essential to good education.

Thirdly, I belived that every child is entitled to the best education we are capable of devising — and I do mean every child.

Finally, I believe that the end of education is more education; that both the individual and the society share an obligation for lifelong education — not from six to sixteen, but from three to eighty-three.

I shall not belabor the point, but I share with you the deep conviction that every child is exceptional.

Some time ago I saw in the Saturday Review, Science Section, a little article on the normal heart. I have not been able to locate it again, but as I recall it took a half a dozen characteristics of the human heart and pointed out what was normal in each characteristic. For example, normally a heart is on the left of center of the chest cavity; normally the aorta enters the heart from the lower right; normally it enters at such-and-such an angle; and a few other similar matters I can not recall. But then it exploded the whole concept of the "normal" heart by demonstrating that a very small percentage of hearts fell in the "normal" range for all five of these, and the number shrank as more characteristics were listed. To transfer this insight from simple organs to human beings with their infinitely various observable characteristics brings one very quickly to understand that there is nobody normal but me and thee and sometimes I mistrust thee!

You people would commonly be called experts in special education. To me this means that you have a special understanding of the special characteristics shared by children who have some common deviation from the norm. However, it must mean too that you have a highly developed understanding of the range of individualities. You must not only know the very teaching and learning principles and methods that are commonly expected of a good teacher, but must also have the special ability and understanding to make the special adaptations which the special individual and the special group syndromes require.

I am not handicapped by mush of any expert knowledge in your field, and I'll try to avoid making this ignorance a warrant for broad prescriptions — for telling you how you should do your jobs.

In choosing a title I did indulge in a little play on words, as you suspected. I'm really trying to cover lightly some of the handicaps under which those who work with exceptional children are operating and some of the gifts they bring to this work. These won't match any lists you could compile, because they are an outsider's view. Then I want to turn to some of the liabilities and assets (handicaps and gifts) that you and your fellow workers and the programs you develop are contributing to education in general and specifically to school systems where you work.

Some of Your Handicaps

You work with children after the rest of us have found we cannot cope with them and they have suffered from their differences and from our fumblings.

You work with "deviates," and everyone knows how we all tend to fear and hate the "different."

You work with those for whom the organization, tools, and all the rest commonly provided just aren't enough; yet you encounter resentment at the cost of special provisions. You do cost a lot.

You do challenge school customs, traditions, and mind sets — although it's only fair to add that occasionally, being human, you rigidify new ones.

You operate in a sort of special isolation from the main stream of education and of a school system; hence you can easily feel ignored or isolated.

You work in fields where standardized achievement and intelligence tests and national norms are exposed for all their silliness and stupidity.

By the very act of removing youngsters with the most easily perceived deviations you make it easy for the rest of us to think of the children left as "normal" or even homogeneous groups. You tend to get so deeply involved in the special programs as to fail somehow to see the whole problem of a school system charged with educating all the children.

You have to keep a constant guard against the tendency to new kinds of institutionalization of attitudes and methods, to a new orthodoxy which can be just as constricting as the old.

In a sense at least, the very salary differential which is often yours builds a separation and even resentment on the part of the others. So, too, with such things as class size and teaching load.

My sister, who teaches a group of emotionally disturbed children, would have me list a long set of handicaps, including such things as your everlasting struggle to get the special resources needed to do the special job. However, as an outsider I trust you people to compile your own lists of grievances and handicaps far more accurately and with much more satisfaction than any list I could compile.

Now to the Gifts

Compared with others in education, the two greatest gifts you have are the gifts of freedom and of uncertain expectations.

These two are not gifts I should expect you to value as highly as some. Much as you may be needlessly bound by routines, the fact is that you are far freer to experiment, far freer to adapt methods and routines, even far freer from the organizational handicaps of grade placement notions, and the like, than are your colleagues in the standard classrooms.

Similarly, you are bound much less by rigidly and artifically conceived expectations. Granted that all too often you talk about "third-grade" or "fifth-grade" work, but to the extend that these concepts bind you, they are pretty much your own making. The rest of us are unusually uncertain as to what is "third-grade" for a youngster with a severe visual handicap, for example.

You have the gift of working closely with children in the most intimate situations.

Unless you are one of those pitiable hit-and-run people who have to spend a few minutes with a half-dozen different groups in as many schools, you have the gift of getting your greatest satisfactions from the observed growth and development of children.

You have many others, but let me close with one which may seem the most ironic. Regardless of all kinds of measures of status, or of the hierarchy of jobs to which people aspire in a society which is really not entirely materialistic, the work you do sets you apart. Far too many of us don't like to be reminded how greatly our society is failing so many of its members, far too many turn away from a TV program like

East Side-West Side because it rasps our consciences; but deep down, however uneasily, we admire and respect the dedication and the special competence you bring to your work. Somehow you stir us to a recognition of the values to which we aspire but which we so often neglect.

Your Handicaps to Education

So far, in talking about handicaps and gifts I have betrayed some of the ways I sorrow for you and some of the ways I envy you. I want to shift now to try to tell you some of the ways you seem to be handicaps and gifts to education as seen by an educationist and superintendent.

Many a superintendent at some time or other has sighed over your inability to see the whole picture of a school system. I still recall the outrage with which a national association of school psychologists greeted me when I said that a superintendent had to balance the need for additional psychological service against the need for new busses, or for building repairs, or whatever. I am sure that sometimes he wishes he could share his agony over whether primary class sizes should be reduced or additional speech therapists should be employed. I can assure you that these choices have to be made, or others more agonizing, in any school district. In the thirties I had to make them in a district where we spend under $100 per pupil. In the fifties they seemed to come as hard in the district where we spend over $1000 per pupil. The fact is that choices must be made constantly. As I told my children when they seemed to be envious of some of their wealthy Scarsdale friends, even with all the money in the world you still have to make choices. You cannot spend summer in a camp in Maine and visit Africa at the same time. Neither can you have children out of their regular class getting special help, and at the same time in the group learning to work with others on a project which demands a wide variety of contributions.

What I am saying is that even when we brush away the natural self-pity of a guy whose very job consists of making these decisions, there is still a fundamental problem of resource allocation, and allocation of children's time, which requires more understanding and more willingness to make concessions than many of us are able to give.

This is a hard point to make. Perhaps a story will help. A shop teacher and a latin teacher were arguing about class size. The shop teacher said triumphantly that if he had more than sixteen to a class there was too much danger of a child injuring himself seriously. The latin teacher was moved to reply that the children in her class ran an equal danger of injury, but the big difference was that their hurts didn't show, their wounds didn't bleed.

As a superintendent I would not want people with your special interests and insights if you did not press as hard as possible for the optimal conditions of work. However, I should hope that you would share some of the burdens of the other members of the staff if by doing so you could lighten them. I am one of those who is not so sure we would need a guidance counselor for every 200 if we could fix it so that our teachers could know and live more closely with their students. A third-grade teacher could do much more for the child with a visual or aural or other classifiable handicap and the child could profit from his relationships with a group of normal children if that group were 20 or so.

Just one other minor illustration. In Scarsdale, our people in special education seemed to need to attend a half a dozen or more different professional meetings away from the school each year. Some years this reduced by that much the amount of travel money available for classroom teachers. Of course we should have had more travel money, and of course no plan is good if it hinges on giving every teacher exactly the same share. But after the battle for funds is over and a budget is actually adopted for the year, there has to be some disposition to fair sharing if we are to be happy and effective as a total team.

Your Gifts to Education

Now let me hurry on to mention a few of the great gifts you have made, and are making, to education generally and to school systems in particular.

I suppose some of the greatest contributions you have made have been through increased visibility. When we took disturbed children out of the attics and deaf children out of the residential institutions, we put out on public (and school) display the whole range of human behavior and aptitude. You illustrated the vast potential for growth of people with all sorts of differences through your concern and competent guidance.

You have demonstrated the importance of involvement, of participation, as against alienation and isolation.

You have taught us again the essential wisdom of setting goals for education in terms of each particular child, and have demonstrated an admirable zeal and ingenuity in finding ways to achieve those custom-fitted goals.

You have greatly enlarged our insights into human behavior, what causes it, what affects it, and what it reflects and reveals.

Almost alone among teachers, you accept the possibility of failure and have learned to live with it. You have made it respectable to acknowledge that sometimes we fail, not the children.

In work with so-called giftedness and with classes of the school-bright, you have rediscovered the values of individualizing and the necessity of socializing. In visit after visit to schools or classes for the gifted, my own colleagues came back convinced that almost everything we learned was directly applicable to work with those who have not been so designated, with the so-called normal.

You are a constant reminder to us of the value of working with people and not on them. Over and over we see teachers in classes of emotionally disturbed, severely retarded, visually or aurally handicapped and all the rest, where the teacher is really, consciously, and everlastingly guiding children's learning, not telling them what to do.

Your special, painstakingly evolving, insights into the needs, abilities, handicaps and gifts of children who are markedly different are truly the cutting edge in education.

Your gift of restless and creative dissatisfaction with the way we have done things and with what we know; your gifts of personalizing our concerns; your gifts of hope and courage, of a realism about what we can do now, tempered with a will that we shall learn how and shall do better — these are all priceless gifts.

Finally — and I remind you that the definition of an optimist is a woman who reaches down to put on her shoes when the minister reaches the word "finally" — you give us courage and conviction that every child has worth and can profit from carefully designed educational opportunity.

Aldous Huxley gave us all one overpowering reason for zeal to provide education for every person, in his Fifth Philosopher's Song:

> A million, million spermatozoa, all of them alive,
> Out of their catclysm but one poor Noah dare hope to survive.
> And among that million minus one might have chanced to be
> Shakespeare, another Newton, a new Dante, but the One was me.

Perhaps you would substitute a gifted child, a child with a hearing or visual or speech or emotional handicap for his Shakespeare, Newton, and Dante. But the implication is clear! We have a selfish reason for fighting to give everyone an opportunity, to recognize every child's worth. We do not ask "for whom the bell tolls" — we are scared to death it might be tolling for us or for our dear ones.

Of course there is a whole array of economic, social, and political reasons which are perhaps a level or two above this selfish excuse. Sometimes we have to talk about how little therapy costs — and how much neglect and later institutionalization can cost. But to me, and I am certain to you, the fundamental value that undergirds your devotion to your work is neither a selfish fear nor the prospect of material gain to society. Rather is it the ethical, spiritual charge that is common to all of the great religions.

With my own religious background, it helps to remember that Jesus said, "Suffer the little children to come unto me and forbid them not." And again: "Inasmuch as ye have done it to the least of these, my children, ye have done it unto me."

I do not know how each of you has come to, and what recalls you to, this same value. I am sure, though, that in the very profession you proclaim you serve, and in your hearts, you keep the conviction that we must do our best for all and each because every child is worth our best. This is your greatest gift, and one you help us all to share.

THE PERSISTENT STATEMENT IN THE REAL WORLD

Louis M. Smith

Over the course of the last half dozen years I have become involved in the analysis of the social psychological characteristics of the classroom. This has come about through teaching a graduate education course entitled The Classroom as a Social System; research on teacher behavior, classroom functioning, and pupil characteristics; and attempts to build a middle range theory, or language, useful in talking about this part of the world. While engaged in discussion of these ideas, I found a sample of students saying "It's not like that where I teach." Mostly these were teachers and administrators from the "downtown" or slum areas of major cities — Chicago, St. Louis, Detroit, and so forth. I took their comments, as they had intended, as a critical challenge. I tried to find out what it was like "where they teach."

Tonight I would like to present some preliminary observations and interpretations of this "real world," a classroom in a culturally deprived or slum neighborhood of a large metropolitan community. "The Persistent Statement" refers to the broad generalization, "It's not like that where I teach" and to a number of more particular statements which teachers in a slum school frequently make as they elaborate upon their work.

While my own purposes were toward building a more realistic general educational psychological theory, the issues seem relevant to special education and to the current discussion of the national war on poverty.

Methodology

The most succinct statement summarizing the methodology of the investigation is contained in the sentence, "This last fall I spent all day, every day, observing one seventh grade school teacher and his class of children." My university commitments were lightened; my days were reasonably free. I attended the public school opening day exercises, faculty meetings, informal daily staff coffee klatches, and daily lessons in reading, writing, and arithmetic. It was the most fascinating professional experience that I have ever undertaken.

Briefly, two points should be clarified concerning the methodology: one of these concerns what I call the logic of this approach, and the other concerns the "how-to-do-it" aspect. While both of these issues are being elaborated into papers of considerable length, for our purposes two paragraphs will suffice. One of my colleagues has called the approach "the micro-ethnography of the classroom." That has a nice ring to it; it makes what one does sound academic and important. Beyond this, it puts the methodology into the anthropological tradition, with the benefits and liabilities which that suggests. More recently this research orientation has been described by sociologists as participant observation. Within psychology the parallels to the methodology are to be found in naturalistic observation and clinical method. Analysis of zoological research suggests that it is very similar to field ecology.

In short, while the procedures have real hazards, some of which we will discuss, the approach seemingly should not be condemned out of hand for there are a variety of scientists behaving in quite similar fashon. This may seem overly defensive, but I have had considerable self-doubts about just what I have been doing. The major purpose I had, beyond seeing concretely what life was like in an area where I had had no personal experience, was to build a model of the events of this classroom. Such a theory would be in the form of hypotheses to be tested by laboratory and field experiments. My results are hypotheses, hunches, and guesses. One does not produce verified principles with this type of research. If we understand each other here, it will save us considerable disagreement later.

The "how-to-do-it" aspects of the method were these. I made contact with an intraceptive teacher who had some interest in the idea. He checked first with his principal. Later I talked with the principal and with other responsible parties in the school and secured their permission. In the class I sat at a table on the side and toward the back of the room. I took copious freehand notes of the events of the class. My focus was centrally on the teacher; my conceptual bias originally centered on his behavior and on social system theory. More particularly, I had just finished writing with Bryce Hudgins an educational psychology text; in this we had spent considerable time with McClelland's personality theory, Homans' conception of the Human Group and Skinner's descriptive behaviorism. Most certainly my perception was guided selectively by the ideas from these men.

To the pupils, I was introduced as a university teacher who was interested in finding out how children learn, what they find hard, what they find interesting, and so forth. In the day-to-day relationships, as I lived in the class, I never told on them for things they did which the teacher did not see or for what they did when he was out of the room. I did not pry into their affairs but was always willing to listen and to talk with them. With the other teachers, I was a naive but persistent observer of Mr. Geoffrey's class. I did not go into their classrooms nor observe them teach. As we became friends, they told me more and more about what life was like in their school. I tried to listen carefully and to understand the nuances of the latent as well as manifest things they were saying. In general, I tried to stay out of they way of the flow of events. However, I was around as the day-to-day trials, tribulations, joys, and excitement occurred.

In the classroom, I kept copious field notes of the events of the day. I brought a portable Stenorette and dictated long, daily statements of observations and interpretations. These daily records grew to a horrifying quantity. The field notes are currently being typed into multiple copies. Ultimately, these will be the raw data processed as I build my model.

The class I observed is located in a metropolitan slum community. The homes mostly were tenements in need of repair. The school had the reputation of "a good school in a difficult neighborhood." The teacher had taught for five years in the building. He had a reputation as a strong teacher and a good teacher. He lived in a suburban middle class neighborhood and commuted by car to the school. The children were not atypical for this community. Of the original 34 children, all but three had tested I.Q.'s below 100. One child had a Kuhlman Anderson I. Q. of 137. Approximately one-fourth had failed seventh grade last year and over half at some time had failed at least one grade. All but three of the children were white. Many of the children were not born in the city but were migrants from the rural south. Conversations with some of the children suggest that their families were originally from lower socio-economic levels of the communities they left. Many of the children would spend weekends and holidays "in the country" visiting relatives. After the first month of school, a room was closed in the building due to less than anticipated enrollment. Twenty of the original seventh grade group were replaced with 20 sixth-grade pupils. This meant that the teacher taught a split class — approximately fourteen seventh graders and twenty sixth graders — for the remainder of the semester. This new group was a "difficult group" in the eyes of the sending teacher. They had been giving him trouble since the beginning of the year. "I can't get any work out of them" were his words. He was pleased to have a different bunch of children.

The Culturally Deprived Child in the Classroom

The concept "cultural deprivation" has recently come into vogue. A major part of my interest centered on developing a clear and concrete image of cultural deprivation as this was exhibited by the children in the classroom. While many facets of this concept exist, and while the anecdotes surrounding "the day the cockleburrs ripened" and of children eating "rock candy" which turned out to be carbolic acid crystals, make interesting telling, two central issues seem important and critical. These I have called the ability problem and the mental health problem.

The ability problem as I have indicated, of the original 34 children only three had I. Q.'s above 100. The distribution overlaps minimally with many classes one finds in suburban schools. The paucity of knowledge and skills which the low intelligence test scores imply struck me dramatically. Early in the semester, Mr. Geoffrey, the teacher, had a map exercise preliminary to beginning work in American History. He asked the children to identify and write in the names of the states in the Union. At best they averaged a half dozen states; many pupils wrote in no more than one or two. Almost none were spelled correctly. Many could not find their home state. Even though I considered the problems of the children being rusty in just getting back to school, I literally could not believe what I was witnessing. When I extrapolated to the impending lessons in Colonial history and distinctions among New England, Middle Atlantic, and Southern regions, much less the broader concepts of colonists purposes in coming to the new continent and the beginnings of democratic government in such documents as the Mayflower Compact, I felt most uneasy. One aspect of the problem came into sharper focus in an offhand comment by one of the old hands who had been in the school for ten years. He commented, "I use to feel angry with the lower grade teachers; then one year I had the kids two years in a row and they didn't know any of the language materials I had taught them the year before." He chuckled when I commented, "It made you wonder who the lousy teacher was?"

Soon I began to wonder at what seemed to be the assumptions of some educators and psychologists who have not been in daily contact with these children. Many seem to believe that the deficits are mostly culturally imposed and are relatively easy to remedy, that research has shown the unreliability of intelligence tests, that most large school bureaucracies and their functionaries are not quite doing what they should be doing and that better teachers, more like themselves, could solve the problem.

In the course of my investigation, I began to look at the alternatives available to the teacher. This immediately raised my most fundamental and characteristic response, "It's more complex than it looks at first." Typically, this complexity indicated a series of dilemmas.

For instance, when a child falls behind in an activity or enterprise, typically he catches up by spending more time or working harder per unit of time. The whole Weltanschauung of the slum child is away from school activities. When extra pressure is needed, a teacher frequently turns to a parent for help. These parents often will volunteer permission for corporal punishment or they will "whip him good" if you desire. Neither parents nor children see the importance of regular school attendance — having the children proximal to learning experiences.

Typically on Friday, and especially Friday afternoon, some five to ten of the 30 went "to the country." Usually this was a drive to rural areas to visit "Grandma" or an aunt and uncle. In reports from the children, it seemed to me that the parents tacitly assumed the children would enjoy the trip. The children uniformly reported, in casual conversation, that they liked the country and would like to move back. When placed in the context of a conflict between maintaining and strengthening family ties, or "kin" as the children would say, and developing competence and achievement, many of us would see some legitimacy also.

Often to increase learning, the prescription is to go back to the level of the children. In a sixth and seventh grade class such as this one, it means an average of fourth or fifth grade level. If you seriously conduct class activities at this level then you have the problem of the few children who are at grade level. While this is the ubiquitous problem of individual differences, it has overtones here that seem more onerous. This concerns the inability of the children to function easily in small groups at independent work. For instance, differentiating assignments, especially those significant in meaning and interest, carries some unspoken requisites. In another context, I have had occasion to observe a seventh grade child struggle with independent study and report making. She was a strong and avid reader, was highly motivated, had skills with dictionaries and encyclopedias, had such resources available, and had verbal problem solving skills. An omission in any one of these would have materially altered her success. As one lists these necessary skills, one almost describes what a culturally deprived child is not.

To catch up, to reverse the tide of influence, suggests you must start earlier. Although I did not observe primary classes, my conversations with teachers at that level suggest that the difficulties are already appearing here. A strong public preschool program seems a very good idea. My only hesitancy here is that perhaps it is practicing the error about which I am preaching — the other man's job looks simpler when you haven't lived it and you don't know anything about it. In short, the low ability and achievement of the slum child, did not look in my semester sojourn like the simple-to-solve problem some commentators have suggested. The many facets require, I think, a broad program.

The mental health problem, mental health, as an area of concern to educators and psychologists, frequently has been a pivotal point of attack on the public schools and also has been a technique utilized by the schools to indicate their breadth of outlook. I would do neither here; rather I would use the concept of further exploration of a series of issues.

One morning I observed a boy, Harold, for an extended period of time. The context was this. The seventh graders were having a recitational history lesson. The teacher was clarifying aspects of colonial America, the early settlers, the way of life. The sixth graders were preparing their geography lesson. In this school system, the course of study demands that geography of Eurasia be taught in sixth grade and the colonial period be studied in seventh grade history. A teacher with a split class must do both. Mr. Geoffrey was engaged in this process. The previous period, 8:40 to 9:30, had been spent in reading. The reading teacher had taken some of the pupils; Mr. Geoffrey and another teacher had grouped the remaining children by ability levels and had taught their first period lessons. Harold, who was in the middle group had come in without any unusual behavior. He is a big, heavy, and strong boy, over six feet tall, about 15 years old. Shortly after he had taken his seat and begun his lesson, I noticed him with his head in his book, too close to be reading. Cautiously, his face concealed by the large cover of the geography book, he busily ate a candy bar. As you might guess, this is not permitted in class. Also note that he has only been in school for an hour and recess is less than 45 minutes away. He slowly devoured the candy, with surreptious looks to the teacher and more direct ones to me, and then he licked the remaining chocolate from his fingers. The candy wrapper turned out to be aluminum foil which could be and was wadded into a tight little ball. Harold commenced to plan with this, mostly bouncing, tossing, and catching. In the front of the row, Mike, with an eye out for nonacademic activities, soon perceived Harold's activities and motioned for him to throw the "ball." Harold, with consummate skill, rested his head on the desk, kept an eye on the teacher and rolled the aluminum foil ball up the aisle to Mike. This went back and forth for a few minutes, with an occasional dropped pencil or book, necessary because the ball had gotten out of reach and one of the boys must move out of his chair to recover it. This continued for 15 minutes — the teacher had been "teaching hard," the boys were clever, and no one else had been drawn in. After one throw through the air, the teacher called a halt. Mike had been on a series of warnings for not working; Harold had received a lecture just that morning for similar nonsense. They were sent out of the class to the hall for the remainder of the hour.

While this is just a single episode of mildly deviant behavior, it makes concrete the more general situation and personality issues I would raise. Harold not only did little school work; he was absent a good deal and generally misbehaved in other minor ways in class. He also received a temporary suspension for hitting, knocking down, then kicking a younger girl on the playground during recess. The girl's father took her to the hospital and muttered something to the effect that he was going to find a City High boy about Harold's size and pay him five dollars to beat up Harold. As far as I know this did not happen. Later in the semester Harold's family moved and he transferred to another school. Mike was probably the smallest boy in class, was almost 16 years old, and achieved about at the third grade level. He did nothing in class — a rapprochment which had gradually developed over the semester as the teacher talked, listened, helped, threatened, punished, and so forth. Mike finally resolved, decided to sit out his three months until he was sixteen. Mixed in with this was some raw hostility between him and his father; the father had thrown lye in the boy's face several years ago. After a long interview between the mother and teacher, and a long session among the teachers, Mike and an older brother were undertaken. The older brother had finally brought Mike, a tough kid by most standards, to tears through a half-hour tirade of the possibilities of reform school.

These two boys were typical in the seriousness of their problems; that is, the problems were chronic, they extended over many aspects of their lives, and they created new difficulties each day. They illustrate what I call the "negative spiral," a vortex or whirlpool which leads away from such minimal goals of adulthood as economic self-support, stable parental and marital ties, and freedom from legal difficulties.

We might debate the public schools' responsibility for these goals as aspects of the children's development. Should the public schools remedy the situation? Are the public schools, by making strong academic demands furthering the difficulties? These are partly questions of values and goals of public education. They are also partly questions of fact — which kinds of alternatives lead to which consequences, and how are these judged as favorable and unfavorable?

Another side of this issue remains unsettled. During an informal conversation, one of the teachers commented about having been urged to "understand" a difficult child. The teacher's reaction was "Understand him? Hell, I wish someone would understand me." Lest I be misunderstood, the teacher who made this comment is one of the most patient, gentle, and dedicated individuals I have met. Mental health, social work, psychology, understanding were all dirty words. Each was a red flag when used by outsiders and a stimulus for humor when used with each other.

To me, it seemed that the teachers referred to outsiders as ones who offered advice but who no longer lived in their day-to-day existence. This I believe is a very important point; the day-to-day existence as currently structured is exceedingly difficult and frustrating. Besides Harold and Mike, Mr. Geoffrey's classroom contained a number of troublesome youngsters and a number of marginal ones. For instance, two boys were on probation from juvenile court. Several of the boys just sat in class; they would do no classwork, and if they didn't disturb anyone the teacher left them alone. (This type of truce, rapprochement, or whatever, is a most interesting problem in its own right.) One of the girls, 12 years old, was very overweight (170 pounds) and each day would present a run of psychosomatic problems; she couldn't see, she felt dizzy, her nose was bleeding, and so forth. Several times a day she had to go to the restroom. She was absent a good deal also. Another girl was exceedingly dependent, she was up at the desk for instructions several times a day. Besides these youngsters who wear you down, and the normal fun-loving boys and boy-crazy girls, there were a half dozen boys who were extremely difficult and hard to work with. At best they would do an occasional assignment; they were engaged in all kinds of nonsense in class; they were inattentive; they were in trouble on the playground; they missed a lot of school; often would come in tardy, and so forth. The major characteristic which they seemed to possess was what I called "neurotic stupidity." They just could not learn by simple experience. The teacher would make a suggestion, would ask them to do something or not to do something else, or would warn or threaten them (the verbal behavior of the teacher was quite varied as he sought techniques to cope with the children); five minutes later they were back into inattentiveness, nonsense, or difficulty. Although it is difficult to speak abstractly about the behavior, qualitatively it did not have what I call the healthy fun-loving adolescent dimension to it. There was a tense, purposeless, stupid quality about the bahavior.

However, it is not just the analysis of the children's behavior itself which concerns me at this moment. For the teacher it meant long, hard, frustrating days. For a conscientious teacher — and Mr. Geoffrey was this, and so were most of the staff — it meant facing a large minority of children who were highly resistive to academic work and who were individually troublesome and collectively fatiguing. The teachers were faced with their own demands to do a "good job." The school curriculum set certain demands which seemed to them to be unattainable. The school staff norms demanded that they work at their jobs in certain ways. The conflicts here increased the frustration. The occasional psychometrist, social worker or other specialized personnel who came by with brief truisms for advice was not looked upon with favor nor was his wisdom influential. To those of us in positions of consulting, supervision, or teacher training, I would urge some careful re-exploration of what and how our knowledge can make a contribution to the mental health of pupils and teachers — specifically, the analysis of teacher frustrations, the kinds and the quantity of which seem very important. Which ones can be alleviated to what degree? Also, what kinds of internal conflicts are provoked by demands from one's conscience, by special service personnel, by supervisors, and so forth?

Teaching as Decision Making

Researchers who use the nonparticipant observer methodology relate insightful experiences when the thesis, which lurks in their data, sharply comes into focus.

Insight phenomena have a flashing, startling, and exciting quality to the perceiver, even though they may be slowly shaping to the outsider. To me, the major result in this investigation is the hypothesis that the teacher can be viewed from the model of decision-maker.

As we looked to more general theory on decision making, we found discussions of fact and value propositions, rationality, alternatives, subjective probability, consequences, effectiveness, and so forth.

Teaching often involves doing or not doing something such as tossing or not tossing a chalkboard eraser to a child as a dramatic illustration of a direct object in language. Choice-behavior is part of the decision-maker's conceptual repertory. It is also part of the teacher's schema. Lying behind such a choice are the teacher's objectives in language arts for the morning. Objectives are goals to the decision-maker. The teacher suspects that such action on his part will startle a few children, provide a concrete illustration of an important concept, and will give him a chance to compliment lightly or tease gently one of the boys for his skill or lack thereof. The decision-maker, conceptually, refers to these suspicions as subjective probabilities. The several events which might occur are to the theorist, consequences. Later, when the children report, within another teacher's earshot, such an incident to their friends, there may occur other events which the sociologists call latent and unanticipated consequences. We will return to that concept later.

Our teacher may not only throw or not throw an eraser but he may dramatically snap a new Board of Education pencil in to pieces, he may call a child up front and rap him on the head lightly but with a flourish, or he might draw humorous stick figure cartoons on the board. In the theorist's terms, any one of these or any combination are alternatives. They, too, have consequences. The consequences have several kinds of probabilities of occurring. We have spoken of subjective probabilities held by the teacher, and we might phrase her behavior as "subjectively rational." Theorists might attack such an illustration analytically with such concepts as "objectively rational," "consciously rational," "organizationally rational," and so forth.

As I watched Mr. Geoffrey toss his eraser and break his pencil, and as I talked with him later about the reasons for his actions, I became enthused about this discovery of teaching as decision making. A number of subproblems began to fall into place.

The Faculty Peer Group and Teacher Decision Making

One of the most intriguing phenomena which I observed was a small subgroup of the faculty. Mr. Geoffrey held a central position in this group. While this is a long and important story in its own right, it is important here for the function it played in the teachers' decision making processes. As is true in any long-standing group, a normative structure existed which prescribed how the members, the teachers, should behave. For instance, during a recess coffee break when one of the teachers was raising a conflict between the administrative position and the position some of the teachers were taking, an old hand commented, "Don't you understand? Principals come and go; the teachers stay." Similarly, I witnessed a number of specific instances in which one or another members of the staff were coerced by the others. For instance, (1) the way in which themes were to be corrected, i.e. using the commonly accepted symbol system for awkwardness, need for periods, etc.; originality was not encouraged, or as one teacher commented, "It's hard enough to get them to write without your confusing them with a different set of instructions," (2) the way in which lines were to pass in the halls — single file and quietly, (3) the frequency with which movies were to be shown, (4) also, for those of you interested in research with public school children, several researchers concerned with pupil attitudes came into the building. The pupils from several classes were chosen by the teacher after consulting with his peers to give a cross section of the views.

Within Mr. Geoffrey's class, as I watched him teach and talked with him afterwards, one of his frequent comments was "That isn't the way it's done down here." As he decided to select an approach to teaching, one of the variables which entered his thinking — his choice of alternatives — was how it would react with his colleagues.

As an observer who made his notes and tried to remain neutral toward the events, I developed several curious emotional reactions. These, too, I put in my notebooks. On occasion it seemed to me that such peer groups are "villains," destroying autonomy, creativity, and spontaneity. Additional observation and reflection suggested several additional aspects. Let me speak briefly to two of these. First, the peer group was a haven and a refuge for the tired, frustrated, battlescarred teacher. A teacher in good standing can let his hair down, gripe, complain, and receive and give solace and comfort. Without this, a public elementary school can be a pretty lonely place. Second, in a large bureaucracy the peer group is an island of democracy. To draw analogies with New England town meetings is inappropriate in that the peer group does not hold formal meetings nor can it legislate directly. Nonetheless, there was a free and open quality about the informal sessions among equals which gave an opportunity for voicing individual opinions and obtaining consensus which then gave a framework in which the individual could behave predictably. Members in good standing had a voice which was listened to.

A teacher as he makes decisions concerning his classroom and extra classroom behavior faces interesting consequences if one part of his thinking does not include the group impact.

Although I have had limited experience with public school educational innovators, seldom do I hear them discuss the issue of acceptance by the faculty peer group. If other schools are like this one — and that remains a question rather than a statement of fact — those who would introduce special programs in creativity, team teaching, mental health, or perhaps even special services for the "exceptional child" might well develop strategies for working with the informal faculty peer group.

Additional Implications of the Decision Making Model

As we began thinking about the teacher's behavior from the decision making point of view, an important implication arose. For many years, in my experience, teachers have been asking the question, "What do I do with this child, this situation, or this problem?" For as many years in my experience, psychologists and teacher educators have parried the question by remarking "It's impossible to respond to such a question; answers aren't that simple." To their colleagues, the teachers comment about unhelpful experts. The psychologists and teacher educators, to their colleagues, comment about the teachers wanting "something practical," "wanting a push button psychology," or "wanting recipes." The hypothesis I would offer is that the decision making model legitimizes the teacher's question. By this I mean, there is basic psychological theory into which such a question is not heresy, but in which the question, in its more abstract form, holds a central position.

Another fundamental issue is the consequence of making the model conscious and explicit. When I first raised this conception with Mr. Geoffrey he was skeptical. He found Simon's Administrative Theory book not especially exciting. As we introduced appropriate content, this skepticism moderated. If it can be established that teachers implicitly operate within this framework, then we may have an important vehicle for moving from the "real world" to one we might call, on some grounds, more ideal. If the shifts you are trying to make do not demand reorganization of the basic dimensions of teachers' conceptual systems, the probability for alteration and innovation should be higher. This hypothesis needs evidence.

The decision making model suggests a means of analysis of another group of difficult problems faced by the teacher. Mr. Geoffrey was faced with the dilemma of giving or not giving homework assignments. Part of his thinking was predicated on such principles as, "These children are academically behind for their age and grade. Additional work beyond class time is necessary to maintain progress, much less to cancel the increasing discrepancy." "The children are apathetic and will do little homework." "The parents are disinterested in school and will not support the teacher's efforts." "Assignments which are made but not carried out will weaken the teacher's power and control in future situations." As we, Mr. Geoffrey and I, talked about such complexities in assignment making, he would ask, with a twinkle in his eye, "What would 'the good teacher' do in this instance?" The "good teacher" was one of our standing jokes of ideal means in the real world and of pat solutions to these difficult problems. The decision model point of view would suggest that each alternative, or pattern of alternatives, has outcomes scalable in desirability as well as probability. On occasion the range is from low or moderate undesirable to extremely undesirable. The solution rests in picking an alternative which, while not desirable in some absolute sense, is relatively more desirable than other alternatives. In the teacher's terms, you "make the best of a bad situation." Such an analysis fosters rationality, suggests pertinent research problems, and lessens the load of guilt carried by the teacher. Obviously one must guard against restriction in alternatives considered and rationalization in logical analysis.

Another implication upon which we are working is this — Mr. Geoffrey treated the children as decision makers. He acted with them, both verbally and nonverbally as if they had choices, e.g. to attend or not attend, to behave or not behave, to do their work or not. He indicated the consequences which followed such choices on their part and which consequences he had control over — that is which were alternatives in his own repertory. For purposes of the present discussion, I would hypothesize that the conception of the child as a decision maker is a different conception than the child as a product of operant and respondent conditioning. I state this a bit hesitantly for we have just finished an educational psychology text in which we take, in part, a strong Skinnerian bias. Also, I am hesitant in that I have not pushed as yet the comparison at any length or depth. On the positive side, it helps me integrate two aspects of the counseling and mental hygiene literature. Ralph Ojemann's "casuality training" and E. G. Williamson's "clinical counseling" effort to make clients more rational seem closely aligned with the decision making point of view. Mental Health problems, as I have argued elsewhere, are an important dimension of the reality of cultural deprivation in the classroom. Insofar as these psychological positions can be integrated conceptually, they can be drawn upon for help.

Finally, we are trying currently to implement experimental studies of the model. One of my colleagues, King Wientge, and I have argued that teachers, as they talk informally over coffee, often pose problems and issues in the form of categorical propositions, "Supervisors who haven't taught in a school like ours aren't helpful," "Our kids are different," "You can't teach these kids with methods like that." The combinations of these propositions in to premises and conclusions implicitly involve syllogistic reasoning. Classroom decisions often are made as a consequence of such reasoning. We have data which indicate that teachers vary in their ability to handle validly syllogisms containing educational content. We are in process of trying to alter their syllogistic behavior toward increased validity. Our tentative pilot data indicate that instructional programs in translating sematic arguments in to concrete figural forms (Venn and Euler diagrams) produce increased syllogistic facility. The major test of the hypotheses will be made later this spring. I mention such experimental work for two purposes: first, to re-emphasize the need for verificational research; and second, to suggest that the model can take one in to the laboratory as well as in to day-to-day dealings with classroom teachers.

Conclusion

In trying to state conclusions, I find myself centering on several thoughts: First, we are still in the process of carefully analyzing the filing cabinet of notes (Actually we had just started this when this paper was written several weeks ago.) Second, my outlook on life tends to be optimistic. Even though my semester's observation jolted this optimism, it did not destroy it. Third, while accenting the complexity of the situation and the futility of oversimplified generalizations, I feel impelled to try to state a few general hypotheses.

As I look back over the totality, I have a strong feeling that the component parts of the total social system had more strengths than the total produced. While this may be saying nothing more than that a difficult situation had too few resources at its disposal, it may be helpful to point out specific issues.

First, even the most difficult children did not seem totally lost. Jim H., one of the "on probation" boys who spent most of his time sitting, who would bristle when "told" to do something, and who commented to a fellow pupil, "If you had been in the seventh grade as often as I have, you wouldn't do anything either," was spending a good portion of the time toward the end of the semester listening to lessons and recitations and reading on his own initiative. Several of the boys, including Harold, while they were sitting near me, came over for help on their lessons. On occasion they seemed to be "working me"; on occasion they seemed to respond in more authentic fashion. Donald brought over a letter he had written to a Christmas card company. The company had sought information on lagging returns and he was trying to indicate the problems of selling Christmas cards in early fall. Although lacking grammatical perfection and smudgy with erasures, the letter contained understandable prose. The boy, in spite of his classroom performance was becoming literate.

While special classes for academically maladjusted, potential dropouts, socially maladjusted, and so forth contain many of the hazards of any kind of discrimination and segregation, they do suggest possibilities for working with some of the children who function so inadequately in a group of 30 or 35 children. In some related work with a junior high school which had developed such a set of classes, we have found leads that seem useful. As you know, the professional literature contains a few experimental studies of such classes and variations in program. As I played the role of observer and empathic listener, the variety of questions and assistance that was asked of me suggest possibilities for a number of semiprofessional roles for school personnel. As I watched Mr. Geoffrey teaching strenuously and seemingly accomplishing so little, I became convinced that the educational psychologist must look at curriculum issues if he is to have workable theory of the classroom. The activities seemed not right for these children.

In short, one of the major ideas which several of us have talked about informally, and which only partially grows out of the observational data, concerns establishing an experimental school in an urban slum community.* The argument might be developed in this fashion. The goal of educational science is theory building. Various kinds of data — experimental, naturalistic, observational, historical analysis, and so forth — can be used to stimulate and to verify theory. An applied science, such as education, has implications for improving social practice. Translating theory in to action, and studying the process can be an important and interesting problem in its own right. In our discussion of the classroom nature of cultural deprivation (low scholastic aptitude, hostility and indifferent sentiments, parental lack of concern), the mental health problems, the curriculum problems, and the issues surrounding the social psychology of teaching, we have the beginnings of a conceptualization of such a school and an agenda of issues with which to deal.

*My own ideas have been so interwoven with those of Professors Iannaccone and Hudgins that I am not sure to whom credit and blame are due. More recently Professor Wirth's historical analysis of the Dewey School at Chicago kindled the excitement further.

In terms of next steps in the basic educational psychology of the classroom, we think we have a model — teacher decision making — which, when exploited, will bring many new insights. As I have indicated we are currently underway in an experimental study of improving teacher reasoning with categorical propositions. Next we hope to tackle the issue of improving teacher use of conditional propositions. From these we hope to move toward more extended chains of arguments and reasoning, more powerful concepts within the arguments, and enhancing the ability to perceive such issues in day-to-day situations. This in turn will play back into the "art" of decision making in the classroom. The model provides, for me, a clearer image of the product of a teacher education program and suggests some experiences, such as role playing, simulation, and successive approximation in classroom behavior, which are vital but not currently prevalent. The experimental school provides a laboratory for such analyses as these also.

As I ramble on here in the conclusions, I am beginning to confuse my role of the seeker of the persistent statement with a more Alice-in-Wonderland role. Perhaps this is fitting though. It would suggest that he who looks carefully at the real world — both its ends and means — can yet dream of a world with ideal means reaching ideal ends.

PEDIATRIC ASPECTS OF SPECIAL EDUCATION

Gerald Solomons

The physician who is not involved to any great extent in the care of the exceptional child has the naive belief that special education is the "open sesame" to all problems affecting the ability of the child to learn. To carry this analogy further, Ali Baba's cave now becomes the repository for all those cases of retardation, deafness, blindness, and major congenital anomalies with which the physician is powerless to cope in routine medical practice.

To a large extent, present medical education is to blame for this state of affairs; however, a considerable proportion of responsibility lies with the special educator. It is the intention of this article to discuss some aspects of special education that have particular relevance to Pediatrics.

Unfortunately, at times the physician, the school administrator, and the regular school teacher are not aware of the reasons, aims, and goals of a particular special class placement, and they compound the problem by premature and unsound advice. As far as the physician is concerned, a report from the education department written in a short, simple, and concise form would do much to clarify the situation. The busy practitioner does not have the time to study a lengthy report on grade achievement in numerous subjects and the personal evaluations of various teachers. A terse statement of the problem, the performance, and the reasons for the particular placement would allow him to counsel the family in an effective manner and institute appropriate therapy if indicated.

Definition

Dunn (1963, p. 2) states that "exceptional pupils are those who differ from the average to such a degree in physical and psychological characteristics (2) that school programs designed for the majority of children do not afford them opportunity for all-round adjustment and optimum progress, (3) and who therefore need either special instruction or in some cases special ancillary services, or both, to achieve at a level commensurate with their respective abilities (Dunn, 1963, p. 2). Ideally we should therefore provide a program of special education "conducted under adequately trained personnel using all the essential, special materials and facilities for the task" (Dunn, 1963, p. 2). Few communities can boast of such a program, and if the local product falls short of this utopian model, a realistic appraisal of the special educational facilities available in that community should be known to all. It is reprehensible, as well as unwise, to misrepresent the local resources, as only by wholehearted support of the community can conditions be improved. If the special education program merely embodies the same principles used in the normal classroom but taught at a slower rate, this should be admitted. If there is only a "custodial class" to segregate the disruptive child, it should be acknowledged. If, on the other hand, this is a progressive laboratory-type of program with research facilities, it should be proclaimed, particularly to the local physicians. It cannot be emphasized enough that the cooperation of the parents depends largely on the private physician, and often he is called upon to give advice about a situation of which he is inadequately informed. Nothing is more conducive to antagonism and poor public relations than the physician who "sells" the special education placement to a hostile and doubting family, only to find that the family's criticisms were valid and well founded.

Medical Appraisal

Currently in pediatrics there is a movement in some areas to establish a register of "high risk" babies (Sheridan, 1962). These are babies who, by reason of a complicated pregnancy, delivery, or neonatal period, are considered likely to develop some handicap in later life. These children will be followed at regular intervals by a team skilled in the evaluation of the minimally damaged. Disabilities often take considerable time to become evident, and this type of program should identify them as early as possible. Special education has a role here, and it is hoped that this challenge will be met with an open mind and an enthusiasm for preventive rather than remedial educational measures.

It is the practice in most communities to require a medical examination of the child preceding placement in a special class. This assumes one prerequisite: the child is already in school, or just starting. The advantages of early diagnosis and treatment are too well known to be discussed and, unfortunately, many disabilities are discovered only when the child commences school. It is the contention of this author that children — all children — should start school at an earlier age than is customary in this country. Those with handicaps particularly should be started at perhaps 2 1/2 to 3 years, when all the special techniques of education, such as the Montessori method, can be applied more effectively. Perhaps in this way the sensory and perceptual problems so common in these children can be prevented or minimized. With such a regimen, could the "late bloomer" flower earlier?

The medical appraisal of any child who derives no profit from normal class placement should be more intensive than is required at present. It is obvious that a simple physical examination is not enough, and ideally an experienced team should be utilized whenever possible. Many competent pediatricians have had no experience in the detection of the minimally brain-damaged. Likewise, many expert ophthalmologists have had no experience in visual-perceptual disorders, and tests for auditory discrimination are not done by many otolaryngologists. Similarly, the school psychologist with only psychometric training is unable to detect the dyslexic, perceptually handicapped, and the emotionally disturbed.

Once the child has been examined by the team and the need for special education has been established, periodic reappraisal is necessary. The neurological picture changes (Solomons, Holden, and Denhoff, 1963), and many different components of cerebral dysfunction may exist in the same child. One disability usually is the most prominent but not necessarily the most disabling. A retarded child with a mild paralysis of the left side of the body is obviously physically impaired; however, a severe convulsive disorder might be his most serious handicap. The seizures can often be brought under control by the judicious use of anticonvulsant drugs, and it is not uncommon for a mild paralysis to resolve in time. Hypothetically, then, our cerebral palsied child could be left with the residual disability of mental retardation and hyperactivity. Let us further assume that our patient now is given one of the amphetamines which controls the hyperactivity, increases his attention span, improves his school performance, and raises the IQ. This rather extreme but actual case history graphically illustrates the need to reassess the clinical picture periodically and to alter the school program accordingly. By the same token, the child with mild mental retardation should not be eternally damned with that label unless repeated psychological examination demonstrates this consistently. It is hoped that our subservience to the omnipotent IQ is a relic of the past.

The Exceptional Child

The fact must be faced that special education is a dirty word to many people and conjures up all sorts of parental guilt feelings and recriminations. This must be changed. There has been some improvement since the recent national focus on mental retardation and allied handicaps, but this has been felt mainly by those with a particular interest in that field.

The dichotomy of "trainable" and "educable" is a source of constant frustration to parent and physician. However undesirable, the connotation is that trainable is a lower class than educable, and that the ultimate goal is graduation from trainable to educable and educable, hopefully, to normal. This is not only unkind, it is unsound. The emphasis on class placement by IQ ranges tends to exaggerate this impression and should be minimized to parents. Each class should be "sold" on the basis that it provides the best type of therapy for a particular child at this time, and that placement in any other situation would be detrimental to the child's future progress. Too often a child is placed in a "higher" class because the parents feel they have to fight for their child's placement on social grounds. The social promotions in regular school can be equally as pernicious, as they tend to camouflage a problem of which everyone is aware but for which little is done.

Now virtually every state has provision for the retarded child in the public school. However, the needs of exceptional children with other problems are not being met. This is a national problem and needs national attention. Brochures, pamphlets, and PTA meetings are painfully slow in disseminating information, and a few episodes on the needs of exceptional children with "Ben Casey", "Kildare", or "Rex Morgan" might do more good than many campaigns previously conducted. Similarly, exposure in popular magazines is also needed. The recent article on reading disabilities in the New Yorker, although published in a sophisticated magazine with a limited circulation, has done much to acquaint the general public with dyslexia (Tomkins, 1963).

Although television and the popular press could do much to improve public acceptance of the exceptional child, this would not reach the younger element. Nowhere do I find a project that influences or is directed towards this acceptance by the normal child. Much parental opposition to special-class placement is due to their child being called "stupid" by the normal-class pupils. We campaign on the one hand for special classes to be in a regular school setting without educating the normal school populace to be sympathetic and understanding of their schoolmates.

The range of abilities in the local school community can vary to such an extent that even an average student can find himself needing, but not getting, special education. Iowa City, the home of the State University of Iowa, where approximately 85% of the town's people are connected with the University, is a classical example. The average IQ of the school children is 115, and about 10% have an IQ of 130 or better as compared with 3% in the nation. The pupil with an IQ between 90 and 100 can be in trouble in a regular class in Iowa City; and often he is. The question now arises: what help, if any, can be given to these children; and would it be at the expense of others with more pressing needs? Realistically there will never be enough special education classes to go around, and the shortage of teachers (President's Panel on Mental Retardation, 1963), aggravated by the approaching population explosion, suggests that things will become worse.

The underachievers do not form a homogeneous group. Many of them have a specific reading disability but superior performance skills. Poor reading ability adversely affects all academic areas, and the child finds himself falling further and further behind. Because of inadequate remedial reading programs, the mild to moderate reading problem is allowed to deteriorate before treatment is started. The severe dyslexic often is labeled stupid, obstinate, or emotionally disturbed before the correct diagnosis is made. Once the true state of affairs is known, he is then considered by many to be hopeless from a therapeutic standpoint or not worth the effort involved.

The slow learner often ends up as the "dropout", the unskilled, and later is frequently the recipient of public assistance. Very few communities have a program with adequate vocational training in which there is good cooperation between industry, trade unions, and the schools.

Children with hyperactivity, convulsive disorders, and behavior problems are exceedingly difficult pupils for the teacher to handle in the classroom. Drug therapy is of great value in the majority of these conditions and, when skillfully used, allows the teacher to function in an optimum environment. Therefore, a thorough examination and a therapeutic trial of appropriate medication would do much to insure the maximum benefit from the educational program. The school nurse can be of great help with these children, observing the effects of drug therapy and acting as liaison between the school, the parents, and the physician.

A perceptual handicap is difficult to diagnose, especially as the neurological examination and electroencephalogram are often negative. Special psychological techniques are needed to uncover the cause of the teacher's complaints of poor handwriting, reversals, and difficulty in learning to read by the sight method, when the child's speaking vocabulary and participation in class discussion suggest at least average intelligence.

The blind, the deaf, or the severely physically handicapped are easily identifiable, and special facilities are usually available somewhere in the state.

The multiply handicapped child is becoming increasingly common as medical science eliminates diseases such as polio that produce single disabilities, and saves the lives of tiny prematures and infants damaged by prenatal infections where multiple impairments are often the sequelae. The mentally retarded, blind, and deaf child with congenital heart disease, born to a mother who contracted German measles in the first four weeks of pregnancy, demonstrates the devastating effects of early central nervous system damage.

The emotionally disturbed group is the most complex. Unless adequate pediatric and psychiatric facilities are available in the community, any special therapeutic benefit from placement in a class for emotionally disturbed children is minimal. This more than any other is a family problem and needs the active participation of all members of that family.

It is tragic that the gifted child is literally the "forgotten man" of the school program. The nation's greatest resource is allowed to stagnate while we beat the drum for a college education for all, irrespective of intellectual adequacy. The parents of gifted children, campaigning for enriched programs, are considered to be pushing, arrogant, supercilious people by many individuals, lay and professional. Should we tie down the curriculum to grade level? Can many subjects be introduced earlier? Should we rally to the banner of investigators like O.K. Moore who teaches children to read, write, and spell at 3 or 4 years of age by introducing typing in the preschool curriculum? These questions are frequently debated, but are still unresolved.

A popular myth is that the handicapped person compensates for his deficiency in one area by excelling in another. For example: the weak mind and strong back of the retardate; the hyperacute hearing of the blind; and the sensitivity of Elizabeth Barrett Browning who, because of her chronic invalidism, watched life go by rather than becoming directly involved. Recent investigation now suggests that the handicapped child has a low opinion of himself, and that handicapping has a blunting rather than a sensitizing effect (Richardson, 1963). Children must be accepted by other children to mature optimally, and a visible handicap is detrimental even without functional impairment. It is strange to find that the child with obesity or a slight facial disfigurement is less accepted in a group than a child with an orthopedic handicap necessitating a wheel chair. More surprising is the fact that this preference is the same in a nonhandicapped as well as a handicapped group.

The Teacher

The teacher is the undefined variable in the whole educational equation. What makes a good teacher? Although formal training and specific courses are necessary, such hard-to-measure traits as warmth, enthusiasm, and ability to get the subject across are surely important. In Dunn's recent book on exceptional children, the first sentence states: "An important key to excellence in teaching is an understanding and acceptance of all children and their individual differences" (Dunn, 1963). Perhaps this, more than any other, is the basic ingredient of a good teacher. Motivation must be examined critically, as teachers working in this field to fill their own unmet needs rarely do an effective job. Too often the role of the teacher as educator or therapist is confused, with detrimental results.

The regular school teacher is often the person who initiates investigation of the exceptional child, and more emphasis on the identification of these children and educational methods to use with them is desperately needed. It is a pity that the basic curriculum in teacher training does not always include mandatory courses in the areas of special education, problems of emotional adjustment, mental retardation, familiarity with psychological tests, and techniques of counseling. In certain cases the school must take the blame for aggravating emotional upset in some of their pupils by the teacher's inability to recognize and deal appropriately with some common classroom problems. A few examples are emphasis on penmanship and motor skills for the incoordinated, oral reading and spelling for dyslexics, and insistence on speaking before the class for the withdrawn child.

The Parents

The words "sold" and "sell" are used freely in this article as it is the belief of the author that parents have to be "sold", not told, their child's future program. People are not happy with things and circumstances over which they have no control and which they do not want, particularly sickness and handicaps. The acute illness is a transient, annoying, uncomfortable episode. The chronic ailment is a lifetime of frustrations, financial commitments, evaluations, and interviews. When various disciplines get into the act, advice is poured out ad nauseam, some of it impractical, much of it conflicting. As any salesman, the special educator has not only to sell his recommendations; ideally he should make the parents want to buy them.

There is an optimum time to discuss a child's deficiencies with his parents. Unfortunately, this time is difficult to gauge accurately. Parents with a handicapped child go through three emotional stages in dealing with the physician (Denhoff and Robinault, 1960). The first is hostility; the second is shopping from doctor to doctor; and the third is that of acceptance. Until this final stage is reached, no therapeutic program is even considered. If the child has an obvious disability, diagnosed early, parental acceptance of special educational procedures usually occurs without too much resistance. However, if the revelation that all is not well with their child comes when he enters school, hostility and denial ensue. This hostility increases when the parents realize that they are dealing with a monopoly and that there are no alternatives to the dictates of the school authorities. Therefore, the initial contact between parents and educator sets the climate for future cooperation and progress, and few will deny that these go hand in hand.

Comment

The old saying that "all men are created equal" could not be accepted in the field of the handicapped child. However, we all believe that every child does have the inalienable right to realize his optimum potential. Only by objective, harsh, critical appraisal of ourselves and our methods can this goal be achieved.

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INTERNATIONAL ASPECTS OF SPECIAL EDUCATION

WORLD CONCERN FOR THE HANDICAPPED CHILD

Morris Fishbein

During the last twenty years I have made at least 32 trips to Europe, during which I was especially interested in problems of the care of the handicapped. I have also studied the services rendered in this field in Japan and in some parts of South America. I know that all over the world interest in the rehabilitation of the handicapped has become a focus for coordinated endeavor. Much of this has resulted from the exceptional leadership of such people as Dr. Howard Rusk of the institute for rehabilitation in New York City, Dr. Henry Kessler of the Institute for Rehabilitation in New Jersey, Dr. Paul Magnuson who established the institute in Chicago, and of the National Foundation (formerly the National Foundation for Infantile Paralysis) under whose leadership departments of rehabilitation have been established in at least 15 medical schools in this country. Among the early members of this committee, of which I was myself a part, was Miss Mary Switzer who is now director of the Office of Vocational Rehabilitation in Washington, D C. Her leadership has been instrumental in advancing tremendously this field of medical activity.

The number of handicapped goes far beyond anything that the average person contemplates. Consider in the United States at least 5 million mentally retarded children, at least 3 million children born with congenital defects, many other millions who have been crippled by accidents, other millions who have been born with heart disease, with blindness, with difficulties of hearing and speech. Consider also great numbers of adults who have become disabled by neurological disorders--such as multiple sclerosis, epilepsy, and Parkinsonism, by infections like poliomyelitis and meningitis, by birth injuries resulting in cerebral palsy--and one begins to understand how tremendous are these problems. Moreover, they are not problems of the United States alone but obviously world-wide in their distribution. Indeed some sections of the world have suffered much more than others from the kinds of infectious disorders that result in permanent crippling.

I have visited in Athens, Greece, the one institute for rehabilitation of the crippled established by missionary efforts of leaders in the International Congress on Care of the Crippled and Disabled. Here under proper management was a pioneer effort but so effective that it received special awards at an international meeting.

In Tokyo I visited the main institute for rehabilitation of the crippled and disabled--a tremendous organization caring for many hundreds of the disabled. I learned there of the laws that were passed in Japan following the end of World War II which make it probably the best national organization for the care of the crippled that prevails anywhere in the world. They have scattered throughout the various prefectures local agencies which conduct the necessary examinations and guide people to the right agency. They have scattered throughout Japan at least eight large institutes like the one in Tokyo where work of the highest possible order is done. What is important, however, is that this represents a well coordinated national endeavor which makes reasonably sure that any deserving person in need of such services will not be neglected.

In Great Britain under the National Health Act anyone who requires this type of service may be guided to suitable agencies and institutions. However, I must mention at this point the fact that the mere enactment of legislation in itself is no surety that the services will be available. The economic distress suffered by England since 1937 made impossible the building of any new hospital until 1956 and since that time hardly enough money has been voted to provide for the development of highly specialized agencies for rehabilitation of the disabled of the type that prevail in the United States.

The smaller countries, notably Holland and Denmark, have been able to establish excellent systems - more recently particularly for the mentally retarded. Some are church controlled and others are non-profit private institutions. So efficient has been their handling of the mentally retarded that 330 schools enroll 40,000 mentally retarded children. Of these, 100 are municipal and 230 private schools. The children are divided into groups with intelligence quotients above 60 and below 60. At age 15 to 16 most of the mentally retarded children who have had intelligence quotients above 60 have been able to go into competitive employment and to become self-supporting. Significant of the Dutch program is the fact that the highly trained teachers who conduct this program receive remuneration about 20 per cent above that of teachers generally.

In Denmark, which was seriously stricken by the poliomyelitis epidemic some 15 years ago, great efforts have been made in rehabilitation of the crippled through the Danish Foundation for Infantile Paralysis, headed by Sven Svenson and L. Ragoczy. This group established a special institute for rehabilitation. Since the coming of the Salk and Sabin vaccines, there have been periods when Copenhagen did not have one case of poliomyelitis. There is now as an outgrowth of this work a special research institute which is concerned primarily with evaluating the percentage of disability resulting from a variety of disorders.

In Russia the statistics, which have only recently become available, actually the first since 1957, indicate just about as high a percentage of disease of the nervous system, psychic disturbances, and crippling disorders as occur elsewhere in the world. In Russia the procedure is generally to keep the mental patients within a family surrounding as far as possible. The Russians still cling seriously to the Pavlovian doctrine as to the causation of many disturbances, even those definitely established as viral disorders. Latest figures indicate that there are 6.4 psychiatrists per 100,000 population in the United States as against 8.4 per 100,000 in the Soviet Union.

Throughout Russia there is a completely organized system of dispensaries and hospitals, a system of workshops attached to clinics for occupational therapy of all mentally disordered. These workshops, however, are designed primarily to aid such patients eventually to make a living, and patients employed are paid on a scale comparable to that of industry. Russia long ago developed a system of nurseries and kindergartens in which children night be placed for the relief of families. Since the Marxist view holds that labor is the primary activity of man, the whole Soviet system is pointed toward vocational rehabilitation and placement.

In my travels I have visited what used to be called the Roosevelt Institute for Rehabilitation in Havana, Cuba, which was under the direction of the great orthopedic surgeon, Dr. Jose Tarafa. However, since the coming of the Castro regime nothing has been heard of this institute. Certainly its name must have been changed from that of Roosevelt, and one doubts that it continues to exist.

In Brazil, under the leadership of Dr. Bomfim, a great institute has made tremendous progress. In Argentina, Drs. Valls and Ottolenghi conduct an excellent institute for rehabilitation.

The significance of all this is that the world is making a beginning and that guidance is available from the World Health Organization and from many voluntary organizations in this field for nations which have become sufficiently provident financially for undertake an adequate program. Rehabilitation must, however, be total. It must embrace the services of all of the specialists in the field of medicine and equally of the accessory professions related to occupational therapy, speech, hearing, vision, and physical therapy as well as other similar groups.

My observation indicates to me that perhaps because of its economic situation, the United States at this time leads all the world. However, one may anticipate that the value of such procedures is now so thoroughly established that many other nations will enroll in this great campaign for the relief and rehabilitation of all who are handicapped.

CROSS-NATIONAL RESEARCH IN SPECIAL EDUCATION

John E. Jordan

Special education has many meanings, both nationally and cross-nationally. Simply stated, special education is concerned with the education of exceptional children. An exceptional child is one who so markedly deviates--physically, socially, emotionally, or intellectually--from what is considered to be normal growth and development that he requires a special class or supplementary instruction and services. Thus the term "exceptional child" includes the physically disabled, mentally retarded, speech impaired, visually impaired, hearing impaired, socially maladjusted or emotionally disturbed, and the intellectually gifted.

In considering the cross-national implications of special education, especially when the underdeveloped countries are included, one must also include the concept of rehabilitation as it is commonly used in the United States. Rehabilitation is commonly defined as the restoration of the disabled to the fullest physical, mental, social, vocational, and economic usefulness possible. Disability is defined as an impairment of the physical, mental, or social capacities of the individual, whereas handicap denotes the extent to which a disability may interfere with the development of or disruption of the individual's way of life; e.g., a missing finger is likely to be a vocational handicap to a pianist but not to a teacher or lawyer.

Special education is, first of all, education. Education deals with learning. Learning is the capacity of the human organism to cope with the environment. As a society increases in complexity, so do its provisions for education. Cross-national research in special education must be aware of the larger educational frame of reference if the research is to possess both theoretical relevance and applied value.

In 1954 The Journal of Social Issues devoted an entire issue to cross-national research. Cross-national research, as defined in the issue, can serve as a convenient term for the kind of research I wish to discuss:

> . . . research undertaken for comparative purposes on the same categories of data across several different national populations or equivalent sections of different national populations.
>
> This is clearly a very wide concept; it covers an immense range of possible operations, structures, and purposes. Cross-national research can take the most different forms, can involve a great variety of activities, and can require highly divergent types of organizational arrangements. An adequate typology of research set ups is not easily devised; projects can differ in a great number of dimensions. (Jacobson, and Schachter, 1954).

For the purposes of the present discussion, it would seem important to distinguish between three principal types of comparative cross-national research:

(1) "Documentary" studies: comparative analysis of characteristics and relationships in already existing records and materials.

(2) "Current statistics" studies: Comparative analyses made possible through increased standardization of data collection and classification procedures in regularly operating statistical agencies and other organizations for the registration of social facts.

(3) "Field and laboratory" studies: analyses of data specifically collected and classified for the comparative purposes in mind, whether through direct observation, interviewing, test administration, field experiments, or laboratory experiments (Jacobson, and Schachter, 1954).

Cross-National Research in Special Education

Four purposes of cross-national research in special education will be discussed.

First Purpose: Basic Research. A recent study by the American Psychological Association emphasized the need for cross-national research by stating that:

> . . . as a strategy for studying those attitudinal and belief variables (i.e., toward diability) in their extreme states, there would be great value in cross-cultural studies of adaptations to disability; for example, comparing those cultures which have widely divergent views of self-determination vs. control of the fates. Then these differences must be viewed in terms of the specific nature of the handicap, and the reactions it elicits from the social environment (Lofquist, 1960, p. 184).

Basic research into the relationships between disability and societal values, differing levels of socio-economic development, and attitudes towards education is necessary to fully distinguish between the influence of disability per se and that of the social environment.

Second Purpose: Applied Cross-National Research in Special Education. Although the pure researcher is most delighted when he finds "that for which there is no possible practical use," history indicates that "necessity is the mother of invention." Special education today needs research that will help us better understand our ethnic and subcultural groups in the United States, especially in the large urban metropolises. Some of this research can only be conducted with control groups in other nations.

Third Purpose: Research and Development (R and D) in Cross-National Special Education. Since education deals with applied learning theory and the "special" of special education deals with the learning implications of sensory and physical deviation, it is my firm opinion that cross-national research in special education will serve the same function that R and D programs do for industry or the space agency. The incidental and ancillary findings of such research and development programs often turn out to be more valuable than the primary objectives of the original research.

Fourth Purpose: International Relations. In many countries the prevalence of diseases and accidents of man and nature have become a matter of national concern and a major health problem (e.g., parasitism in the Egyptian fellah which has reduced initiative and energy so as to affect the national economy: hookworm in the southern region of the U.S. in the 1930's). This is especially true when disabilities result in lifelong handicaps and forced dependencies. The burden of dependency in a relatively large segment of society may significantly contribute to a country's poverty and relative backwardness. From the social and economic point of view, a waste of manpower is a matter of grave concern, not only because of the loss of productive capacity, but also because of the added burden imposed upon the remainder of the population. These facts are now being recognized by a number of underdeveloped countries which are presently attempting to lift themselves and bring about an industrial revolution.

Since physical disabilities know no geographical, racial, linguistic, or political boundaries, the field of special education and rehabilitation may be a uniquely effective area of service in improving international understanding. Health and the education of the chronically handicapped are fundamental to the prime democratic concept of equal opportunity and social justice for all. A country in which good health is enjoyed by only a minority cannot be politically or economically stable. Ill health, poverty, lack of educational opportunities, and bad government are circular; they generally foster the existence of each other. Assisting under-developed countries to develop effective special education and rehabilitation programs may be one way of helping to break this circle of unfortunate events (McAlees, 1963; Toth, 1963).

Areas That Need Research

In view of these four purposes of cross-national research in special education, what are some needed areas of research? The following are offered as variables that need research to ascertain their influence upon the education of disabled or exceptional children.

1. Societal Values. Societies and cultures differ in value orientation and/or characterizations. For example, the Latin American culture, when contrasted with the U. S., has been described by anthropologists and social psychologists as : latent vs. manifest, diffuse vs. specific, particularistic vs. generalistic, affective vs. instrumental, personalistic vs. cosmopolite, and ideaological vs. secular (Jordan, 1964 A &B). How do such value dimensions as support, conformity, recognition, independence, benevolence, and leadership differentially affect both the establishment of special education programs and interpersonal attitudes toward the exceptional child? Comparative cross-national studies of the "field and laboratory" type could yield some of these answers.

2. Social Structure. How do different social stratification systems affect exceptional children? Do fixed social systems give "closure and limits" and thus induce security? Do open competitive social systems arouse negative reactions to the disabled or handicapped on the part of the nondisabled with whom they must compete? Cross-national research could give us some of these answers.

3. Attitudes Toward Somato-Psychological Variations. While facial disfigurement is negatively valued in the U. S., the facial dueling scar was highly valued in Prussian Germany. Yet some research also seems to suggest that there is somewhat of a universal negative evaluation attached to disability as it approaches the head and face. Research also suggests that physical disability is devalued more in agrarian societies than in industrial ones, whereas intellectual deficit is devalued more in industrialized societies than in agrarian ones. If the latter is correct, it raises serious questions about some of the current emphases in the area of mental retardation.

4. Modernization Variables: Anthropological research (Hanks and Hanks, 1948) suggests that the physically disabled are better protected and may participate more in societies where: "(a) the level of productivity is higher in proportion to the population and its distribution more nearly equal, (b) competitive factors in individual or group achievement are minimized, and (c) the criteria of achievement are less formally absolute as in hierarchical social structure" (pp. 19-20).

How do differential degrees of urbanization, economic development, educational development, political development, and health relate to the status of the disabled or handicapped? Studies of depressed areas, Appalachia, and culturally deprived groups in the United States could also be profitably studied in this respect.

5. Attitudes Toward Education: How do other people feel toward the education of the disabled or handicapped? How do the disabled feel about their own education? How do the disabled feel that others feel about their education?

Little definitive knowledge is known about the attitude matrix surrounding disability. The above questions reflect the "facet theory" approach of Guttman (1950). Such a systemic cross-national approach as implied herein might become a "Rosetta stone" enabling us to decipher the attitude matrix.

6. Attitudes Toward Health and Disease. Medical sociology indicated that even in highly developed societies like the U.S., many "irrational" and "unscientific" notions pertain toward health and disease. Disabled children are variously viewed as punishment from God, fulfilling a special place in life, teaching others to be thankful, giving others a place of service, and so forth. Such attitudes influence program development and services to exceptional children, i.e., one can either be a Lady Bountiful or a Dr. Schweitzer!

Special Education as Social Change

The education of disabled or handicapped children and/or adults has, through history, called for a change in attitudes and values. Those persons who are responsible for introducing such new ideas or innovations are engaged in what is today called social change. In this article I have been advocating a research program in the cross-national implications of disability. To adopt a more applied approach, how could we use such new knowledge if it were acquired?

The approaches to change are legion. Psychologists are prone to see change from inside the individual looking out. This change is perceived as alterations in people's perceptions, affects, cognitions, and attitudes. Festinger (1957) stresses the dynamics of the "strain for consistency." Cognitive dissonance arises when the individual faces a new situation or new information. The individual attempts to reinstate consonance by changes of cognition, behavior, or values. Or if the discrepancy between the old and new is too great (thus too threatening), the individual may reject the new, thus maintaining consonance or consistency.

Kelman (1958) has outlined three processes of attitude change: (a) compliance, (b) identification, and (c) internalization. In compliance, the change agent possesses the means of control. The actor accepts changes either because he expects rewards or fears punishments. In identification, the actor feels positive toward the change agent. He wants to maintain a positive relationship with him and the change per se is accepted; i.e., the content is more or less irrelevant but is accepted because of the change agent. The response is fully accepted but is not integrated with other values of the actor. In internalization, the new responses are not only accepted but are integrated with other values. The change agent is accepted as credible rather than merely attractive; i.e., instrumentalism vs. personalism.

Rogers (1962) has described the characteristics of social change as: (a) relative advantage, (b) compatibility, (c) complexity, (d) divisibility, and (e) communicability. Relative advantage is the degree to which an innovation is superior to the idea it supersedes. Compatibility is the degree to which it is consistent with existing values and past experiences of the adopters. Complexity is the degree to which an innovation is relatively difficult to understand and use. Divisibility is the degree to which it may be tried on a limited basis. Communicability is the degree to which the results of an innovation may be diffused to others.

It seems to me that if we use Kelman's three processes of attitude change (compliance, identification, and internalization) and Rogers' characteristics of diffusion (relative advantage, compatibility, complexity, divisibility, and communicability) that we could take the results of cross-national research in special education and apply them in our own country, as well as being more intelligent in our technical assistance efforts to other countries.

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ADMINISTRATION

INSPECTION AND INTROSPECTION OF SUPERVISION IN SPECIAL EDUCATION

June P. England

In developing this subject, the writer has drawn heavily upon the literature pertaining to supervision in general education for three reasons: (a) Special education is part of the total educational field. (b) Special education has the same elements for supervisory consideration as does general education; namely, children, teachers, classrooms, administrators, parents, and others. (c) The review of educational research indicated a paucity of studies on organization, administration, and supervision in the literature pertaining to exceptional children (Voelker and Mullen, 1963).

Before inspecting or giving over to introspection of supervision, it is important to consider the purpose of supervision. Simply stated, supervision has the purpose of improving or upgrading the quality of the educational process.

Inspection

The public schools of this country have been inspected almost since their inception. Barr, Burton, and Breuckner (1947) note that in Boston in 1709 committees of citizens were appointed "to visit and inspect the plant and equipment and to examine pupil achievement." This marked the beginning of supervision. Many years later mention was made of "inspecting the teachers' methods, criticizing them and advising the teacher concerning teaching." The qualifications of those who judged and advised the teacher were not a major issue. Selection of the teachers, as directed by the General Courts, required only that they be of "certain religious and moral" qualities.

The intervening two hundred and fifty-five years have had periods when willingness to move forward was evident. These efforts gained impetus from educational experience and from contributions of other disciplines. These periods have been interspersed, however, with times when maintaining the status quo or reverting to earlier practices had appeal.

The Superintendent and the "Special Supervisor." Sometime after 1825 the position of superintendent of schools was created, thus placing someone other than the board or committeemen over the teacher. Another milestone was passed in 1875 with the addition of the position of "special supervisor." Little information is available relative to this function. It appears to have been for new teachers and for introducing new subjects into the curriculum. Supervision as it is known today was born in the first twenty-five years of this century (Gordon and Lucio, 1962). Little was written about the function of a supervisor prior to that time. Two early definitions strike a humorous note in view of today's knowledge:

1. The business of a supervisor is to cast a genial influence over his schools, but otherwise he is not to interfere with the work.

2. Supervision is taking the broad view, the general view, and seeing into the back and middle grounds as well as the foreground with its details. . . . Supervision is the vision in the old and beautiful sense of seeing things invisible (Barr, Burton, and Breuckner, 1947).

Supervision Redefined

Greater numbers of students and teachers resulted in the increased employment of supervisors. More direction to supervisors seemed indicated. In 1914 Elliott redefined the responsibility of the supervisor: "Supervisory control is concerned with what should be taught, when it should be taught; to whom, by whom, how and to what purpose (Elliott, 1914). This appears to have been the first effort to define educational purpose and to link it to supervisory responsibility. Not until 1922 when Burton stated the following concerns of supervision was further definition attempted:

1. The improvement of the teaching act (classroom visits, individual and group conferences, directed teaching, demonstration teaching, development of standards for self-improvement, etc.)

2. The improvement of teachers in service (teachers' meetings, professional readings, bibliographies and reviews, bulletins, intervisitation, self-analysis and criticism, etc.)

3. The selection and organization of subject matter (setting up objectives, studies of subject matter and learning activities, experimental testing of materials, constant revision of courses, the selection and evaluation of supplementary instructional materials, etc.)

4. Testing and measuring (the use of standardized and local tests for classification, diagnosis, guidance, etc.)

5. The rating of teachers (the development and use of rating cards, of checklists, stimulation of self-rating) (Barr, Burton, and Breuckner, 1947).

While these statements were directed toward improving the effort of the teacher and may have involved teachers in some self-analysis and self-rating, control was still the underlying purpose of supervision.

Professional Growth. Dunn's statement in 1923 is one in which a sign of things to come can be seen. In answer to the question of "What is supervision?" she answered:

> Instructional supervision has the large purpose of improving the quality of instruction, primarily by promoting professional growth of all teachers, and secondarily and temporarily by correcting deficiencies of preliminary preparation for teaching by the training of teachers in service (Barr, Burton, and Breuckner, 1947).

This appears to have been the first recognition of professional growth as a goal for all teachers. The "correcting of deficiencies," however, indicated some continuation of the concept of supervision as a regulatory function.

In the 1930's the human relations and group process techniques began to be applied. Many factors caused these to be less effective than might have been expected. "Manipulation techniques were more often emphasized than theoretical constructs in working with groups and individuals," according to Gordon and Lucio in their review of research (1962). This was probably due more to the lack of experience and real understanding of the purpose of those techniques by supervisors than for any other reason.

Introspection

There has been a trend in supervision from a controlling function in the 1920's and '30's toward a more service oriented role. How far have we progressed in implementing this newer concept? One easily observable trend can be seen in title changes emphasizing coordination and cooperation.

Title Change - Its Implications. Schools now have consultants, helping teachers, teacher counselors, curriculum coordinators, and many other titles which suggest service rather than authority. Has there been marked movement away from the inspection type of supervision? Have title changes made a difference?

Title change indicates recognition of and concern for the effect the supervisor has upon those supervised. It indicates movement away from the concept of control toward the provision of service. It suggests that the supervisor need not have complete mastery of all subject matter and the answer for all needs. It further suggests that the supervisor helps teachers at their request and works as a consultant on their problems. What has fostered this chage?

World War II served to shrink the world. The population of this country moved toward more unified goals. Much more attention was given to the democratic way of life and the democratic process. Educational leaders wrote of the change and its implications for the educational process. Bold statements were heard:

> Authority must give way to the democratic process; supervision must be a process of mutual study, analysis, and evaluation in which all members of the teaching staff and administrators participate; the supervisor must lose his inspection role and become a professional who renders service and leadership in a process; self-evaluation and rating must take place for maximum growth of teachers (Wingo, 1948).

Contributions of Other Disciplines. These pronouncements were in many ways similar to those made in the "20's. The difference lay in the concern for people's feelings. The contributions to education by the studies in psychology, sociology, and psychiatry were responsible for this new emphasis. The effect of people's feelings about themselves, their students, peers, and superiors were beginning to be understood. The importance of human interaction was recognized. Educators became more concerned with techniques for developing leaders who understood the impact of these attitudinal and behavioral factors on the learning process.

Much has been written concerning the art and/or science of leadership. Many have said leadership was so intangible that it could not be taught (Ramsey, 1962). There is evidence now to suggest the elements of effective leadership can be identified and taught. Baum reports: "Leaders can be trained to develop insight and perform creatively in the act of guiding, directing, or influencing people" (1957). Mendenhall and Larson (1956) and other have reported successes in leadership training. Hobbs has warned that as

> . . . the psychologist, educator, businessman and industrialist gain increased knowledge of how men may be manipulated, they are faced with increased ethical and moral responsibilities which require more than technical leadership competence (1956).

The Concept of a Person Being "In Process." Carl Rogers, Maslow, Bills and others have identified the concept of the fully functioning individual. Rogers states:

> This kind of person is open to all of his experience, sensitive to all his environment and other individuals with whom he has relationship--he is not bound by his past learnings (Rogers, 1962).

It indicates being "in process rather than some achieved state" and suggests progression (Rogers, 1962).

The kind of leadership which guides creatively and insightfully toward the established educational goal will be both technically competent and morally and ethically responsible. Rogers (1962) quotes Weisbrod as reporting that a preponderance of the research "clearly supports the functional role of leadership emerging within the framework of democratic processes" (Rogers, 1962). Leadership is but one of several words which have emerged in the development of this subject. They pertain to and might be considered synonymous with supervision in the present context.

Does it not follow then that the functional supervisor should be ". . . open to all of his experiences, sensitive to his environment and other individuals with whom he has relationship" (Rogers, 1962). There is much evidence to show that teachers, children, and administrators can be helped when they wish to be helped. Corey says he has already judged himself as needing helped when he is ready for the kind of person who can ". . . help him think more penetratingly about what he is doing, how he is going about it and the evidence he uses to estimate his success" (1963).

The Process of Supervision - Helping People to Be Ready to Be Helped. The process of supervision should provide for "cross-fertilization" among principals, supervisors, teachers, and special service personnel with the superintendent, his assistants, and community representatives involved at appropriate times. It should make for better understanding of the problems each faces. It is possible to create a structure which will develop and utilize the knowledge and skill of each of the individuals mentioned above. Frequently, contributions are made by individuals other than the professional staff. Board members, parents, custodians, bus drivers, and others can help provide an improved learning environment for children.

Who can establish a climate which will allow the supervisor and other personnel to be "in process"? How well does current practice in supervision meet the criteria of being "in process"? *Research in Review,* December 1962, refers to "the long-existent hiatus between the schools' stated objectives and its practices (Barr, Burton, and

Breuckner, 1947). Shaftel attributed the gap in part to

> . . . the lack of systematic theory of action, poorly defined supervisory responsibilities, a general neglect of the educational method and lack of consideration for the skills, values and knowledge of the staff or organization member who undertakes this work (Elliot, 1914).

Many persons in a school situation help set the milieu. A key individual in fostering an environment conducive to personal and professional growth is the supervisor himself. The supervisor, however, may find that he has been assigned tasks which are directive in nature and not compatible with the newer democratic concept of supervision. The superintendent employs supervisors for a purpose and his expectations must be satisfied. The supervisor needs to thoughtfully pursue the tasks in a manner which will bring about an appropriate balance between what is expected and what is consistent with an enlightened concept of supervision.

Fully Functioning Supervision and Present Expectations of the Supervisory Role. What are considered as supervisory tasks? Harris' glossary of terms lists ten major goals toward which all supervisory activities are directed:

1. Developing curriculum
2. Organizing for instruction
3. Staffing for instruction
4. Providing facilities for instruction
5. Providing materials
6. Orienting new teachers
7. Providing in-service education
8. Relating special services to instruction
9. Promoting public relations
10. Evaluating educational programs (Harris, 1963)

In keeping with the functional supervisory role which is best suited to the construct for process, the writer suggests the following modifications in the statements of tasks:

1. Assisting in identifying needed curriculum changes and helping to develop the necessary modifications
2. Suggesting instructional organization
3. Assisting in staff selection for instruction
4. Recommending appropriate facilities for maximal instructional opportunity
5. Helping establish procedures for the selection and development of instructional materials
6. Assisting in the orientation of new teachers
7. Assisting in the planning of a variety of in-service education opportunities
8. Assisting in interpreting special services and their place in the total educational program
9. Assisting in community and staff education toward better understanding
10. Helping to develop and implement evaluative processes

The alteration in the wording of the supervisory tasks in no way alters the goals but most certainly alters the method for achieving the goals.

Implications for Special Education Supervision. What are the implications of this emerging functional supervisory role for special education?

In order to establish some perspective, a view of the current status of supervision is in order. There has been marked growth in public school special education programs throughout the nation in the past fifteen years. The U.S. Office of Education reports that the number of children served in special programs doubled between 1948 and 1958. Every state had programs in speech correction and mental retardation by 1958 (Mackie, Williams, and Hunter, 1963). Although current figures are not available, it is obvious that services to special education students have increased markedly since that time. The highly centralized cities are dividing into small administrative districts. As a result, special education is also decentralized. Such cities as Philadelphia, Los Angeles, Chicago, and Detroit, some of which were pioneers in special education, have the problem of establishing relationships and determining areas of responsibility of central office and district administration (Voelker and Mullen, 1963). This is a problem new to large urban districts. The rural and suburban areas have been feeling their way and, out of necessity, developing techniques for sharing the responsibility of serving exceptional children. Some of these techniques could be equally effective in the decentralized city situations.

Benefits

Rural and suburban communities have had some benefits which were not always visible in the planning and developmental stages:

1. Children are served in their community school whenever practical.
2. Cooperation between schools and districts was usually necessary to establish special education programs.
3. Supervision usually became service oriented to maintain the needed coordination.
4. The title "supervisor," with its authoritarian implications, declined and such titles as "consultant," "special education program coordinator," "teacher-counselor," and others, were born.
5. The latest research findings could be built into new programs without the problems encountered in introducing change in traditional programs of long standing.
6. Many fine teachers with the latest training could be recruited for special education.
7. Finally, one of the most important benefits accrues when programs are near the homes of children; namely, greater opportunity for more frequent face-to-face parent-teacher consultation.

Problems

There are also many problems present in the development of the newer programs. Some of them are:

1. The lack of or inadequate consultant help (i.e., small one-teacher programs in small school systems).
2. Transportation (i.e., amount of time spent on bus measured against value of time spent in school for very young).
3. Coordination of efforts in a region to assure service for all children.
4. The emerging roles of county and intermediate offices of education and the establishment of effective relationships with local districts.
5. Assumption of responsibility in equitable manner (i.e., one large system within a region taking no responsibility for providing programs for its own children or those from other systems while expecting to have all of its special education needs cared for by neighboring systems).
6. Unification of program or curriculum goals (i.e., too much emphasis on Braille and too little on use of other communication media in one elementary program, while the reverse might be true in another).

The Role of State, the Intermediate Office and the Local District. As the total spectrum is viewed, there are common areas of responsibility at the state, intermediate and/or county, and local school district levels. These are both mandated and consultative in nature.

Some state departments are still assigning both regulatory and consultative responsibilities to the "consultants." This creates a duality of function which in most instances interferes with optimal consultative function. One possible reason may be that most state departments have not increased staff in proportion to the growth of special education programs to be served (Blessing, 1960; Mackie and Williams, 1963).

The growth of the intermediate and/or county offices has been stimulated by the lack of state consultant service available to local systems as well as the lack of state funds supporting special education within local districts. In many instances these offices have implemented legislation to earmark county tax monies for special education. Another positive service has been coordination of program offerings and in-service education, the provision of consultants to those districts not having their own, and many others which vary in accordance with regional needs. The offices surveyed by the writer have successfully kept consultative and mandated services separate.

It is in the local district where the children will benefit from the mandated and consultant services.

The question of relationships of special consultants to building principals must be faced, since the principal is the instructional leader of the school. It is recognized that the consultant is working for and with the principal of a building in the assumption of his responsibility (Graham and Engel, 1950). It is usually the principal who seeks assistance from special education consultants since the principal feels less adequate in this relatively new facet of educational responsibility. It is an error to plan without considering the importance of the principal's behavior. Grobman's summary of the University of Florida studies indicated:

> . . . one of the more important conclusions was that the more democratic the method of operation of the principal, the more accepting of operation of the principal, the more accepting of self and others were the teachers and pupils, the more favorable were the attitudes of parents toward the schools, the more democratic was the behavior of the teachers, and the more the teachers interacted with the community (Bills, 1963).

Grobman concluded that the most significant factors in the acceptance of a school by its community were the attitudes and behavior of its principal. This is as true for the programs of special education within a building as it is of general education.

Is it possible to develop a structure in which the skills and knowledge of individuals within these three areas of responsibility can achieve the desired goals? It is recognized that any structure depends on the human element to effect it. It is further recognized that without a structure for implementing process, only piecemeal results will be achieved. What should be the nature of a structure to create and maintain the best possible programs? Any structure which will be effective should be (a) cooperatively planned, (b) understood by all, and (c) involve all those who make the difference with children- special education teachers, classroom teachers, administrators, parents, and so forth (Ferneau, 1954).

Opportunities for individuals to meet together to talk--not always be talked at--should be a part of any program. People should get to know each other as individuals who have something of value to contribute. Effort must be made to create a climate which is receptive to help from a consultant. The supervisor must be skillful enough to serve recognized needs while helping to identify and solve new problems. Most important of all, the supervisor should help those involved see the need for planning together to set goals and working together to achieve the best possible educational experiences for children with special needs.

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THE RELATIONSHIP BETWEEN SUPERVISION AND THE QUALITY OF SPECIAL EDUCATION AS MEASURED BY EVALUATIVE INSTRUMENTS: NEEDED RESEARCH

Robert A. Henderson

When this topic was assigned several months ago, it was hoped that this paper would present a critical review of the research done in this important area, a summary and discussion of the findings, and an indication of the trends.

The summary will be brief: there have been no studies purporting to measure the improvement of quality of special education by supervision--at least none reported in the literature.

This is not to say that the area has been ignored. One of the bulletins issued by the U.S. Office of Education from its study, "Qualification and Preparation of Teachers of Exceptional Children (Mackie and Engel, 1955) dealt with directors and supervisors of special education in local school systems; and another dealt with supervisory personnel in state departments of education. These studies, like most of the others which have assessed supervisory activities, utilized the questionnaire technique as the basic method of securing data. Opinions obtained from teachers of exceptional children were compared with those from directors and supervisors at the state and local levels, and with college instructors preparing teachers of exceptional children. A panel of "experts" operating independently of the questionnaire developed a statement of need. In this way, an estimate of the competencies needed by local supervisors, and the professional experiences and preparation desired, was obtained. It follows, then, that supervisors with the requisite training and experience will have the needed competencies and thus will contribute to the quality of special education programs. It is on this basis that we have been proceeding to justify supervisory positions for our special education programs. We have failed, however, to verify, through objective studies using evaluative instruments, the assumption that supervisors in fact improve the quality of special education. One of the reasons for this failure is simply that we cannot define operationally the elements of quality in special education.

This in turn leads us to an even more basic problem: that quality in education is an elusive concept. We all know what it is--yet we have a hard time defining it so as to permit objective measurement. As MacDonald (1963) put it, "There are no commonly accepted answers to the most basic question concerning the instructional process." Some try to define the quality of education in terms of the product--i.e., improvement in pupil performance. Such results reflect many variables not controlled or even known and thus cannot be taken as evidence for or against quality in teaching. Also our measures of pupil achievement are rather limited to academic areas and so fail to measure such desirable outcomes of education as heightened intellectual curiousity, development of independent study and research skills, appreciation of art, etc.

Another measure of quality in teaching is the direct evaluation of the teacher in terms of his performance. The dangers here are also evident: objective measures, such as lesson plans, use of audio-visual materials, etc., leave much to be desired; while subjective evaluations of the teacher's classroom performance are not very reliable nor subject to validity study, as criteria measures are unavailable for determining the quality of the rater.

Thus the problem of measuring the improvement in quality of special educational programs through supervisory services is likewise difficult in that the ultimate desired outcomes are twice removed, and we have no satisfactory criterion measure.

Finding nothing directly applicable, let's turn for a few minutes to the research in related areas. Perhaps there are enough common elements in supervision to permit transfer of findings from other fields and from general education.

A study by Pfiffner (1955) obtained data from a multiple-choice questionnaire involving supervisors and employees of five different organizations: a field station of the United States Forestry Service, a state department of employment office, an overhaul and repair department of a Naval Air Station, a Navy Shipyard, and the Lockheed Aircraft Corporation. Test items were grouped under behavioral factors: organizing, planning, pride in group work, and job helpfulness. The responses were validated against criteria of work-group effectiveness--i.e., productivity and output figures. The results confirm many of the generally accepted notions about effective supervision in the public schools, despite the fact that the supervisors in this study are from government, industry, and the military, and therefore are persons in authority roles as opposed to the consultant-helper concept for educational supervisors. Supervisors who promoted the small, natural group got best results. It was found that effective supervisors are approachable; they instill a feeling of rapport through listening and fact-finding--i.e., a non-directive approach. Relationships between the supervisor and his superiors had a direct bearing on his effectiveness, as well. Interestingly enough, the good supervisor was found to regard reports and records as necessary and useful, while in general the less effective supervisor held them to be a nuisance and a bother.

More directly related to educational supervision was the study by Ferneau (1954). The researcher related the role expectations for state department consultants, held by school superintendents, to the success of the supervisory services offered. As might be expected, when the consultant and administrator agreed on the role each should play, the consultant service was rated as being of high value. Conversely, disagreement in role expectations was correlated with low ratings of the value of the consultant's service. From this it can be hypothesized that perceptions of appropriate supervisory roles may mean more than the actual competencies demonstrated by the supervisor. Supervisors must consider carefully their responsibility for fostering perceptions of their roles which contribute to their effectiveness.

There have been several studies of supervisory effectiveness as rated by teachers. Bradfield (1959) reports on a survey of 472 elementary teachers in some 50 Arkansas schools. These teachers found that their most difficult problem was to provide for the wide range of differences in pupils. They indicated that the attitude with which the supervision is given is more important than the procedure used. The teachers wanted supervisory assistance from a democratic leader who helps with suggestions, yet permits freedom of initiative, choice, and independence in carrying them out in the classroom. Considerable stress was placed on the efforts of the supervisor to promote feelings of belonging and personal worth in the school. They consider the availability of a supervisory leader who is understanding and sympathetic most helpful to them.

Saunders (1955) obtained teacher opinions of the work of the supervisor in gaining teacher confidence, promoting morale, and showing interest in the individual as a teacher and as a person. The ranking of the responses indicates that teachers place heavy emphasis on the human relations aspects of the supervisor's responsibilities--even above instructional improvement.

Cox and Lott (1961) used the Q-sort technique with teachers, principals and supervisors to compare perceptions of the supervisor's role. There was general agreement that the supervisor should have (a) a belief in people, (b) an acceptance of contributions of each, and (c) respect for individual differences of teachers. However, while supervisors gave prominence to the concept that cooperative efforts of groups were more effective than the efforts of individual members, the principals ranked this much lower, the elementary teachers even lower, and the secondary teachers placed this in a negative category. Similarly, while principals and secondary teachers saw "having the know-how and giving it to teachers" as a desirable supervisory attribute, the supervisors placed this in the "least liked" category. Yet we are told that, "One is successful in supervision to the extent that he fulfills the role expectations of the teachers" (Lucio and McNeil, 1962, p. 182). Harms' (1959) review of studies dealing with the improvement of teaching through supervision lead him to conclude that a difference of perception between supervisors and teachers exists concerning the nature of, and the methods of dealing with, problems confronting teachers.

In evaluating these studies, we must remember that they represent differences in time as well as in geographical area. As Sister Theopane (1957) has reported, the role of the supervisor in education has been a changing one and will probably remain in a state of flux for some time to come. Thus the same questions asked of a similar sample of teachers or administrators in a different area or at a different time should be expected to produce different results.

Another question which must be raised about all such opinion studies is the validity of the response. Teachers may see supervisors as useful intermediaries with higher authority, and they may report improvement of teaching effectiveness in order to insure continued supervisory liaison. When Cappa and VanMeter (1947) had teachers rank the most helpful supervisory procedures, small group meetings led the list. However, when Milstein (1960) measured the effect of teacher participation in curriculum study groups in a controlled experiment, he found little evidence to indicate changes in classroom teaching behavior by the experimental teacher over the teacher in the control group. Detailed classroom observations before and after the curriculum-study-committee experience showed positive change in arithmetic and language arts, but not in 67 other areas.

Harms (1959) reached the similar conclusion that small-group techniques have not been found to be the most effective or efficient method of helping teachers improve.

Perhaps part of the problem arises from the fact that techniques of supervisory practice have grown in number and kind rather rapidly: classroom visitations, teacher-supervisor interviews, demonstration teaching, in-service lectures, group discussions, etc. The usefulness of these are not questioned, but little is known regarding the effectiveness of each in differing situations, by supervisors with different personality patterns, and with teachers facing different kinds of problems. Harris (1963) notes, "How value, interest, and personality structures of supervisory personnel influence their behavior patterns may well provide an important key to help solve the mystery of modern education--*why schools don't change much*!"

Let's look now at the specific problems concerned with evaluation of the effectiveness of supervision of special education programs:

1. Different techniques and skills probably are needed for effective supervision in differing situations. The comparative studies cited above concerning the difference in perceptions of supervisory roles between teachers at elementary and secondary levels and principals and supervisors substantiate this clearly. The training and experience

of each teacher, and numerous less objective personality factors present in every teacher, constitute major variables affecting the value of a given supervisory practice. While researchers like to simplify design and deal with such variables singly, it may well be that they act in combination so as to obscure positive results when analyzed alone.

2. Further, we have the problem of "how much" supervision? Given a special education program of twenty classes of educable mentally retarded children, would the quality of the program be most improved by: (a) hiring two supervisors and no additional teachers, or (b) hiring one supervisor and one additional teacher, or (c) hiring no supervisor and two additional teachers? All three alternatives are available to the administrator, and if this is an Illinois program, the state reimbursement will be identical in all three cases. Intuitively, it seems possible that different answers might be forthcoming from different situations: (a) Mostly new teachers in the first year of a county-wide cooperative district program as opposed to (b) an experienced staff in an established, well-accepted, single district, unified program. And, since it is possible that supervision can have negative effects as well as positive ones, the choice in the above illustration may well hinge on whether to hire one good supervisor, or two of unknown quality.

3. Finally we come back to that perplexing problem of definition of terms with sufficient objectivity to permit measurement. We will need to study not just what works and what does not, but when, under what circumstances, and to what degree. Testable models are needed to provide a framework for integrating the findings of studies from various fields.

As Dr. Willenberg (1964) recently remarked: "The field of inquiry is wide open and begging for someone who is willing to strive for law and order."

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AUDITORY IMPAIRMENT

EDUCATIONAL AND VOCATIONAL GUIDANCE OF THE DEAF

Stanford C. Blish

It would not be possible to summarize the problems of educational and vocational guidance of the deaf within the time limits of this panel, even in generalities. Therefore, I shall restrict my comments to the most crucial problem confronting guidance in our field, namely, the vocational revolution now underway, in which automation and the proliferation of highly skilled and technical job operations threaten to cut drastically the number of jobs available, and at the same time require more highly trained workers.

This is becoming an acute problem also in the education and guidance of hearing persons, not only of students in school, but of workers of many years experience who are suddenly faced with the extinction of their jobs. This is a vast social problem which actually may be insoluble in terms of providing adequate and permanent jobs to all who wish to work, as noted in a recent Life Magazine article on leisure. Insofar as it is possible, with reference to deaf persons, I am convinced that its solution depends largely upon the degree of oral communication skills developed and the facility in the use of the English language attained by the deaf person. Less and less are employers going to be willing to hire persons with whom communication is difficult. Within the past month, a supervisor of our local office of the Vocational Rehabilitation Commission has been told by two employers that they would be willing to hire deaf workers, quote "If they can talk and I do not have to write to them."

A recent study (Blish, 1963) of all 113 students who had left or graduated from the Clarke School for the Deaf during the ten year period, 1953-1962 shows that this is not an impossible task for the great majority of deaf students.

1. Of the 113 students, 72 or 63% had gone on to public high schools or private preparatory schools at the 9th or 10th-grade levels. Of these, 41 had graduated; 29 were still in school and planned to graduate; one transferred to another school; and one left to get married.
2. Of the nine students who went to trade schools, six graduated; two left to take jobs; and one left to attend business school.
3. Of the 25 students who went to business schools, 22 graduated and obtained office jobs; one was offered a job before graduation; and two were still in school.

4. Of the seven students who went on to junior college, five graduated; and two were still in school.
5. Of the 13 students who attended college, three graduated; five were still in college; one transferred to business school; and four left before graduation. It is too early to report on the college experience of all the students since many were still in secondary schools. However, an additional six students were accepted by college for entrance last fall, and another was accepted by a junior college.
6. Of the 12 students who took on-the-job training with the assistance of the Vocational Rehabilitation Commission, all but one are now working.

TABLE I

Secondary School Entrance

	Entered 9th Grade	Entered 10th Grade	Total
Preparatory school	20	4	24
Public high schools	26	22	48
Total	46	26	72

TABLE II

School Experience

	Graduated Graduated	Plan to Graduate	Transferred	Left	Total
Preparatory school	15	8		1	24
Public high schools	26	21	1		28
Trade schools	6		1	2	9
Business schools	22	2		1	25
Junior colleges	5	2			7
Colleges	3	5	1	4	13
Graduate school		1			1
Accepted fall, 1963:					
Junior college - 1					
Colleges - 6					
Total	77	39	3	8	127

TABLE III

Attended hearing schools	96	85%
Took on-the-job training	12	11%
Record unknown	5	4%
Total	113	100%

TABLE IV

Present Status of Students

Still in school	49	43%
Working and/or housewives	56	50%
Unemployed (not by choice)	3	3%
Record unknown	5	4%
Total	113	100%

In summary, 96 or 85% of the 113 students attended one or more schools with hearing students; twelve took on-the-job training in normal hearing situations; and the records of five are not known. Concerning the current status of the students, at the time of the study in June, 1963, 49 or 43% were still in school; 56 or 50% were working and/or housewives, 3 or 3% were unemployed not by choice; and the record of five was not known. From this, it was evident that 105 or 93% of the students were attending schools, holding down jobs, or running homes in a normal manner.

These were not special, hand-picked students, as is shown by their achievement and intelligence scores. For all 113 students, the range of median scores on the Stanford Achievement Tests was from 3.8 grade level to 11.3 grade level, with a median for the group of 7.2. The scores for those going to high schools or preparatory schools ranged from 5.3 grade level to 11.3 grade level, with a median for the group of 8.1.

TABLE V

Stanford Achievement Median Grade Level Scores
Achieved during Year of Leaving Clarke School

Grade Level: from to	3.0 3.9	4.0 4.9	5.0 5.9	6.0 6.9	7.0 7.9	8.0 8.9	9.0 9.9	10.0 10.9	11.0 11.9	Total	Median for Group
Whole group	1	12	14	23	21	18	12	10	2	113	7.2
Students who went to secondary schools			7	10	18	15	10	10	2	72	8.1

For the whole group, the reading scores, taken as the average of the paragraph meaning and word meaning tests of the Stanford Achievement Tests, ranged from 3.1 grade level to 10.4 grade level, with a median for the group of 5.9. For those going to secondary schools, the scores ranged from 4.0 grade level to 10.4 grade level, with a median for the group of 6.6.

TABLE VI

Reading Grade Level Scores
Average of Paragraph Meaning and Word Meaning Scores
Stanford Achievement Tests

Grade Level: from to	3.0 3.9	4.0 4.9	5.0 5.9	6.0 6.9	7.0 7.9	8.0 8.9	9.0 9.9	10.0 10.9	11.0 11.9	Total	Median for Group
Whole group	9	20	30	21	19	6	4	4		113	5.9
Students who went to secondary schools		9	16	19	16	4	4	4		72	6.6

The IQ scores for the whole group, as obtained from the Wechsler Children's and Adult Intelligence Scales, ranged from a low of 69 to a high of 134, with a median for the group of 102. The median IQ for those going on to secondary schools was only four points higher, or 106.

TABLE VII

Intelligence Quotient Scores
(Wechsler Intelligence Scales for Children and Adults)

IQ Score: from to	51 60	61 70	71 80	81 90	91 100	101 110	111 120	121 130	131 140	Total*	Median for Group
Verbal IQ											
Whole group	3	7	15	24	36	18	2	2	1	108	92
Secondary school group		1	5	17	26	16	1	2	1	70	96
Performance IQ											
Whole group		1	0	11	13	20	32	22	5	104	113
Secondary school group				3	5	14	25	15	5	67	115
Full scale IQ											
Whole group		1	8	16	24	33	20	1	1	104	102
Secondary											
Secondary school group			1	6	15	25	17	1	1	66	106

* Some scores were not available for a few students.

With regard to hearing losses for the whole group, 69 students were profoundly deaf with decibel losses of 90 or more; 37 students were partially deaf with decibel losses of 60 to 89; and seven students were hard of hearing with decibel losses of 45 to 59. Among the students going on to secondary schools, 46 were profoundly deaf; 21 partially deaf; and five were hard of hearing.

TABLE VIII

Hearing Losses

Taken as Average Decibel Losses at Frequencies of 500, 1000 and 2000

	45 db - 59 db	60 db - 89 db	90 db or above	Total
Whole group	7	37	69	113
Students who went to secondary schools	5	21	46	72

We do not expect all deaf students to go to high school. Neither do all hearing students go on to high school. The future is not necessarily darker for these students with lesser abilities. Some opportunities may decrease, as in the time-honored field of linotyping. Here the answer certainly lies in the imaginative exploration of new job opportunities for the deaf.

I think of a girl who left school recently. This girl, profoundly deaf, had a median achievement score of 4.9 grade level; a reading score of 3.4; and an IQ of 72. She had no particular interest except in animals. Through the cooperative efforts of the Vocational Rehabilitation Commission, this girl was given training in a boarding kennel, where she was taught the care of animals, and the clipping and grooming of dogs. In spite of her relatively poor speech, the owner reported that the girl got along well with the staff and clientele of the kennel, and successfully completed her training. After gaining further experience, the girl plans to start her own business at home. I am sure that in her work in the care of animals and the clipping and grooming of poodles, she will never be displaced by automation!

However, high school education for those capable of academic work at that level has become almost a necessity in job hunting, as is well known among our hearing contemporaries, and has led to a vast and continuing growth of secondary educational facilities. The need for higher education of our average and above-average students is clear, and the obligation of our schools to prepare them for it is also clear. Many term this an impossible task, but the students I have presented to you did not find it so. Deaf boys and girls have a way of achieving the impossible. I think it is this response of our students to an "impossible" challege which makes the education of the deaf the most rewarding work in the world.

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AN HEBBIAN APPROACH TO THE STUDY OF THE VISUAL PERCEPTION OF DEAF CHILDREN

George Brabner, Jr.

Problem

The purpose of this investigation was to determine whether Hebb's theory of visual perception could be used effectively to predict and explain similarities and differences between the performances of children whose hearing had been impaired from early life and the performance of hearing children on two types of visual perceptual tests.

Based on a review of pertinent studies, generally, and on Hebbian theory, specifically, it was concluded that there was evidence for assuming that a hearing loss, occurring early in life, results in a sensory deprivation which retards the visual perceptual learning ability of the hearing-impaired child with respect to at least some types of visual stimuli. Furthermore, evidence, based on both animal and human studies, suggested that the perception of continuous line figures may be less dependent on learning; hence, more innate in perception and therefore less affected by a hearing loss than the perception of figures made up of discrete elements.

A child profoundly deaf from birth would probably be most affected, whereas a severely deaf child would be less so, and a hard-of-hearing child less affected. Costello (1957), for example, found that an alteration in visual perception behavior (as measured by the Knox Cube Test) does not occur in hard-of-hearing children, but only in children exhibiting profound hearing losses.

Method

Two visual perceptual tasks, involving the ability to recognize "immediately" two kinds of visual stimuli (geometric line figures and geometric dot figures) projected tachistoscopically at varying exposure speeds, were devised. These were administered to three experimental groups of impaired children (differing in degree of hearing loss) and to a control group of normally hearing children.

The four groups were equated on mean chronological age and mean intelligence quotient. All subjects were selected from public schools, with three groups of subjects (two experimental and the control group) attending the same school. The oral method of instruction only was employed in the education of the experimental subjects. All subjects were screened for gross defects in visual acuity, but in no case was it necessary to eliminate subjects as a result of this screening.

The experimental subjects were divided into the following three categories, according to degree of hearing loss manifested: (1) the hard-of-hearing (20-55 db); (2) the severely deaf (60-75 db); and (3) the profoundly deaf (80 db plus). There were ten subjects in the hard-of-hearing group, ten in the severely deaf, and twenty-one in the profoundly deaf. The control group consisted of twenty normally hearing children.

Three experimental hypotheses were advanced. The first of these stated that no significant difference in number of errors would be exhibited between normally hearing children and hearing-impaired children, regardless of the degree of hearing loss, on a pattern recognition test utilizing geometric stimulus figures comprised on continuous lines. The second hypothesis stated that significantly more errors, proportional to the degree of hearing loss, would be made by the hearing-impaired children than by the normally hearing children on a pattern recognition test utilizing geometric stimulus figures comprised of dots. Finally, the third hypothesis stated that, where additional dots were added to the stimulus figures to facilitate recognition, the number of errors exhibited by both the normally hearing and the hearing-impaired child would decrease; however, a significantly larger decrease would occur among the hearing-impaired and in those children manifesting the greater degree of hearing loss.

The measuring instruments employed in the present investigation were modeled after those previously devised for the assessment of certain aspects of visual perception in deaf children (Myklebust and Brutten, 1953; Embrey, 1955). The two instruments used differed mainly from their prototypes in that the subjects were required to make a recognition rather than a reproduction response to the stimulus figures or patterns; i.e., immediately after seeing each stimulus figures clashed before him on a screen, the subject was presented with a different response card containing eleven foil figures and the stimulus figure which had to be identified.

A record was made of the subjects' recognition errors on each of the two tests. Means of the combined scores on the first test (line test) were computed for each group os subjects at the constant exposure speed of 1/100 sec., as well as for the combined scores across all of eight exposure speeds: 1/100 sec., 1/50 sec., 1/25. 1/10, 1/5, 1/2, 1, T (Time).

On the second test (dot test), means of the combined scores were computed first for each group of subjects at the constant exposure speed of 1/100 sec., and then for the combined scores of three subsequent trials at a constant exposure speed of 1/1000 sec. during which the stimulus figures were presented to each subject in a systematically modified way and in a predetermined order. Separate statistical comparisons were made among the four groups on the basis of their scores on the two tasks.

The Kruskal-Wallis one-way analysis of variance was computed for the date from the lines test, and a nonparametric two-way analysis of variance was made of the data on the dots test. A statistical comparison of the two largest groups of subjects (the normally hearning and the profoundly deaf), based on the Mann-Whitney Test, was also made.

Results

As hypothesized, the differences among the groups in their performance on the lines test were nonsignificant.

With reference to the second hypothesis: the results of the dots test showed that the difference between the normally hearing group and the toal hearing-impaired group was significant at greater than the .05 level, but less than the .10 level. The mean error score of each of the hearing-impaired groups was higher than that of the normally hearing control group.

The comparison of the performance of just the normally hearing and the profoundly deaf on this same test revealed that the profoundly deaf made twice as many errors as the normally hearing, a difference found to be significant at the .05 level.

The third hypothesis failed to be supported by the data. The addition of dot "cues" to the stimulus figures evidently did not serve to facilitate recognition to any significant degree. though there was a tendency for the predicted decrease in errors to occur in the profoundly deaf group, whereas the control group merely maintained a constant error rate.

The general finding, reported in previous investigations, of a higher incidence of erros in response to dot figures for both normally hearing and hearing-impaired children, as contrasted with their performance on line figures, was also confirmed by the results of the present study.

Supplementary findings based on further analysis of the data are as follows:

1. The groups did not differ significantly from one another in the length of exposure time required for accurate perception of the stimulus figures.

2. Low positive correlations were found between chronological age and scores on both of the visual perceptual tests.

3. Low positive correlations were found between intelligence quotient and scores on both visual perceptual tests.

4. A statistically significant positive correlation was found between intelligence quotient and scores of the profoundly deaf on the lines test.

5. All of the groups exhibited a tendency to select foil figures on the response cards which were located in the mid-portion of the cards.

6. When the subjects erred in identifying stimulus figures, they tended, regardless of degree of hearing loss, to choose the same or similar foil figures.

7. Based on introspective data elicited from the normally hearing group, there was some reason to believe that labeling or familiar associations may have been only minor factors influencing the perceptions of the stimulus figures.

Conclusions

From the findings of the present study, it was concluded that to the extent that the profoundly deaf subjects used in this investigation are representative of comparable deaf children in the public school population, it would appear that such children have greater difficulty than do normally hearing children in perceptually integrating dot elements of this type, presented under these conditions, into recognizable wholes.

The results of this study suggest that the application of Hebb's theory to problems concerned with the visual perception of hearing-imparied children at least merits further exploration. The very fact that the theory logically encompasses both innate factors and learning in perception endows it with an explanatory power which cannot be dismissed as a mere eclectic compromise.

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COUNSELING THE DEAF

William N. Craig

For many years, the only professional personnel specifically trained to work with deaf people came from teacher preparation programs. The graduates of teacher preparation programs served as administrators, vocational counselors, audiologists, guidance counselors, and in a variety of other specialized professional roles within the field of the deaf. In most instances, these dedicated people performed with a high degree of skill and with considerable understanding of the problems of the deaf.

At least three factors have altered the effectiveness of this means of acquiring professional people who would work with deaf people in nonteaching positions. The first factor is demand for trained and experienced teachers by schools for the deaf. This demand has been reflected in higher salaries and other benefits. The second factor is the rapid expansion of knowledge, not only in the field of education of the deaf, but in every field of study outside of education which could be brought to focus on some problem of the deaf. The third factor involves the availability of scholarship funds largely through the support of the Vocational Rehabilitation Administration. These scholarship funds have made it possible for educators of the deaf to bring the problems of deaf people into a frame of reference so that other professional workers might deal with them. In other words, the professional counselor is now being encouraged to adapt his methods to meet the needs of the deaf. He is first a counselor and secondly a trained counselor with the deaf.

Currently, there are at least five programs available where a professional counselor, or other professional person serving in a counseling role, can gain an orientation to the problems of the deaf. Each of these programs has a slightly different emphasis and is designed to meet a particular need. New York University, the University of Illinois, and San Fernando Valley State College have programs lasting for a full academic year. This type of program is designed to provide leadership training in the area of the deaf through what might be called intensive preparation. People in these programs would be expected to put in a year's residence at the University

The Oregon College of Education, the University of Tennessee, and the University of Illinois, again, provide an orientation program for counselors which lasts for less than a year. This might be called light or moderate preparation to work with the deaf. These programs require the trainee to reside at the university or school for the deaf for one month, one quarter, and one week, respectively.

Obviously, the goals of these programs vary. This variety does, however, provide a maximum training opportunity for a large variety of professional people. Different degrees of exposure are available to meet differing needs.

There are several points of agreement that can be seen running through all of these programs. In the first place, interest developed from the recognition that the deaf child, after graduation from a school for the deaf, was not always able to make an optimum adjustment to the hearing world. The importance of this adjustment was most easily recognized in the vocational area where the problems of unemployment and underemployment could be assessed. Each of the five college programs indicated above specifically emphasizes the importance of preparing vocational counselors to work with the deaf.

In the second place, general agreement exists that a person working in a professional capacity with the deaf should combine knowledge about the deaf with a strong background of knowledge and experience in another areas. In other words, this specialist should result from an interdisciplinary approach. Counseling the deaf is not an isolated field of study, but is rather the adaptation of the field of counseling to the specific needs of the deaf.

In the third place, strong agreement exists that any individual working with the deaf must have considerable personal experience with deaf people during the course of the program. Book knowledge without face-to-face contact is considered relatively sterile and largely pointless. Direct experience with the deaf at the job site, in the home, at school, and in the clinic is customarily provided. Field trips to agencies serving the deaf are generally included, but the personal and direct communication effort is primary. Communication may be through oral or manual or written means, but the ability to communicate directly with the deaf is critical for each trainee.

Since I am most familiar with the program at the Oregon College of Education, I would like to discuss this program.

Last spring the Oregon College of Education, Oregon State School for the Deaf, and the Vocational Rehabilitation Administration jointly cooperated on a new orientation program for counselors working with deaf and hard-of-hearing clients. The program developed is of four weeks duration. It is intended to provide an understanding of the special problems faced by deaf people and to give the counselor basic knowledge and skills to work effectively with deaf people.

The trainees have an opportunity to live on the campus of the Oregon State School for the Deaf where they come into daily contact with deaf and hard-of-hearing students and every effort is made to provide opportunities for the trainee to work with these students. In addition, a number of opportunities are provided for social as well as training contacts with deaf adults. The Oregon Association for the Deaf is interested in the success of the program and has cooperated in this aspect of the course.

To demonstrate occupational problems and potentials, field trips are arranged in which the trainees visit employers and deaf employees on the job, service facilities for the deaf, and other educational centers for the deaf. During the last session, the trainees visited the Portland Center for Hearing and Speech, the Vocational Department of the Washington School for the Deaf, Tektronics Corporation (a large industry manufacturing electrical equipment), an automobile repair shop, a shoe repair shop, North Coast Manufacturing Corporation (manufacturers and distributors of heating, ventilating, and air-conditioning equipment, tanks, and drainage materials), a dry cleaning plant, and a data-processing section of the Oregon State Department of Motor Vehicles. When we visited firms employing deaf workers, we had a chance to talk to both the employer and the deaf employee. We were, therefore, able to get a first-hand view of the employer's feelings about his deaf workers and also the employee's view of his job.

At the Tektronics Corporation, for example, a plant foreman and the personnel director sat down with us in a conference room to discuss generally the product they were assembling, the steps necessary in production, and how deaf employees were contributing to this process. As we toured the assembly areas, the foreman pointed out deaf workers to us. He explained at each point how the employee was selected, the type of training he was given for the job, what the salary range was for that job, and what the promotional opportunities were.

He explained just how far a deaf person could go in this plant before he could no longer expect to be promoted, a fact that Tektronics Corporation is careful that the deaf person understands before he accepts a job. They are also careful to explain that they are in a competitive business and that they will not keep a handicapped person on the job unless he does his work.

We were able to watch the deaf employee working and also interrupt him to talk about his job and his aspirations. At the conclusion of the tour we returned to the conference room for further discussion. In this way we were able to probe individual employers' and employees' attitudes about employment of deaf people. In this particular case, the employers felt that the deaf workers they had hired were excellent employees. They were, however, very careful in their selection of deaf workers.

As their training program even for hearing people is primarily by demonstration, the speech and language problem of the deaf was no particular handicap. In one instance, difficulty did arise when a deaf employee, wanting to take his vacation the following week, indicated his desire by writing a note on Friday evening saying, "I will take my vacation Monday." The administrative office had some difficulty explaining that it was customary to file a request, not write a proclamation.

Field trips to other business firms were conducted in a similar manner. The trainees in the program in counseling the deaf felt that this practical aspect of the course was of significant value

Visits to the Portland Center for Hearing and Speech and to the Washington School for the Deaf were somewhat different. The Portland Center for Hearing and Speech is an evaluation center. The trainees were given an opportunity to see how hearing tests are given, what recommendations might be made, and what training activities could be conducted for hard-of-hearing people at the Center. This experience is expected to give the rehabilitation counselor an understanding of the services available, appropriate cases for referral, and insight into the procedures behind the Center's recommendations.

The Washington School for the Deaf cooperates with Clark Junior College to provide advanced vocational training. This effective use of facilities demonstrates how services designed for hearing students can be extended fo the training needs of the deaf. The School for the Deaf acts in a supporting role by assisting the deaf student with his class preparation.

In the interests of the interdisciplinary approach, a seminar is conducted each week, at which time two guests are invited to meet with the trainees. The guests represent special problem areas and the discussion centers around these areas. During the last session, guests included two members of the Oregon Association for the Deaf (an organization of deaf people), two ministers to deaf congregations, and representatives of various educational centers. The guests invited will vary from session to session.

The three courses carrying college credit are Problems of the Deaf, Counseling the Deaf, and Communication with the Deaf. The communication course provides intensive training in manual communication--finger spelling and sign language--and also involves teaching other special techniques for facilitating individual interviews. The counseling course includes both a lecture presentation and a lab experience. The lab is considered important since the trainees are supervised in a counseling situation with deaf students. The course in Problems of the Deaf is a survey course including various areas important to an understanding of deafness and the deaf or hard-of-hearing person.

Each four week program is designed to handle seven trainees. The small classes enable us to visit industries without interfering too much with production and permit us to work closely with the trainee in other parts of the program in order to give him a basic ability to work with deaf clients within a short training period of four weeks.

The other programs, as enumerated before, differ in a number of respects from the program at the Oregon College of Education, but the three basic points of agreement are evident. That is, (1) that the vocational areas is the prime consideration in counseling the deaf, (2) that specific training should be directed toward adapting the trainee's basic competency in counseling to the special needs of the deaf, and (3) that the trainee should have the maximum number of opportunities for professional and social contacts with deaf people. The effective counseling program must, therefore, establish knowledge about the problems and occupational potentials of the deaf, encourage adaptation of counseling techniques specifically for the deaf, and develop the ability to communicate meaningfully with deaf adults.

RATIONALE FOR EDUCATING HEARING IMPAIRED CHILDREN IN PROGRAMS INTEGRATED WITH REGULAR PUBLIC SCHOOLS

Alice A. Kent

A marked growth in the number of programs for hearing impaired children integrated with regular public schools may be noted by studying the statistics published in the January issues of the American Annals of the Deaf for the past two decades.

This same period shows a rapid increase in the number of diagnostic clinics in hospitals, universities, and schools.

It is natural to assume that these two growth factors have had a deep influence on each other. As specialists in the areas of neurology, psychology, sociology, physical medicine, psychoacoustics, and education have been drawn together in early diagnostic studies of children suspected of having a handicapping hearing loss, their findings have helped educators develop a broader picture of the "whole child." Preschool programs now tend to have a diagnostic teaching philosophy more alert to discovering and using the educational program and inter-disciplinary services best suited to help the individual child realize his potentials.

In communities where the hearing impaired school population is large enough to permit the children to be placed in special classes for hearing impaired well graded in age and ability to achieve, there are definite benefits to be derived by having the program integrated with a public school system. Programs intergrated with public schools can enable children to get an earlier start than they might otherwise have.

Many of these children may be unable to go into a class with normally hearing children for academic instruction during their elementary school years. However, they are not subjected to the feeling that they are so different from the rest of the world that there is no program for them in the schools which their hearing brothers and sisters attend. They can participate in gym classes, art classes, field trips, athletic contests, auditorium programs, and numerous other activities that provide a wealth of background experiences for their specially trained teacher of the deaf to utilize as she works at the development of the language arts skills of reading, speaking, writing, speechreading and listening.

The teachers of the deaf in an integrated program will have the advantage of workshops and other in-service training programs provided for the teachers of the normally hearing and thus keep abreast of new methods and techniques in education.

These special teachers are kept informed of curriculum and textbook changes taking place in the public schools. Because they are provided with the same materials to use with their handicapped children, their children can be better prepared for continuing into fuller academic integration with normally hearing children at the junior and senior high school levels.

Individual children who develop enough skill in any subject to permit them to study that subject with a regular class can be allowed to do so.

A good integrated program will have within its framework a class of elementary children (sometimes called hard-of-hearing, sometimes a hearing conservation center) made up of children who can achieve successfully in a regular classroom with the daily assistance of approximately forty-five minutes spent with a specially trained teacher of of the deaf. This class should be housed in a building apart from the graded classes of the more severly handicapped children and under the supervision of the same person. Some children in this group may be those for whom early auditory training has resulted in good use of residual hearing. Some may be deafened, and other just hard-of-hearing. The children in this class may or may not require special class placement at the junior high school level. In many instances they have continued through senior high school successfully with little supportive aid. However, this transitional class is made possible because the entire program is integrated into a regular public school system.

Parents are eager to have their handicapped child a part of the hearing world. The result is good parent cooperation in putting school work in practice in the home.

An integrated program can serve to acquaint countless community persons, neighbors, and regular school personnel with the abilities and problems of hearing impaired persons. This has in many cases led to all important personal contacts resulting in job placements.

A child who attends school with normally hearing children in his early formative years takes it as a matter of course that he will go on to high school. While tutoring has been available for many years in some communities for hearing impaired high school students, there is a current trend toward placing full time trained teachers in high schools to help these students during study hours and if necessary to teach one or more high school subjects to them.

Not all integrated programs are good. The writer is well aware of programs where the age and academic spread of pupils in classes is far too great to be educationally sound. Perhaps this has sometimes happened because of a lack of understanding on the part of school administrators of the importance of maintaining well graded classes for the deaf. The term "Day Classes" has led to a weak concept of the importance of having enough children in the area to be served to warrant the establishment of an integrated program. Inadequate supervision and school admission policies have been detrimental to otherwise successful programs. It is to be hoped that the new standards currently being developed will help to alleviate these weak spots.

The geography of an area, its school facilities, and its hearing impaired school population need to be thoughtfully considered when the establishment of an integrated program is being considered. However, the benefits to be derived from an integrated program are numerous if the program is organized to meet good educational standards.

TRAINING PROGRAMS FOR PROFESSIONAL WORKERS WITH THE DEAF

Edna S. Levine

Ten years ago this August, Public Law 565 of the 83rd Congress launched a crash program to bring better rehabilitation services to more disabled people. The years that followed the launching will probably go down in rehabilitation as the Great Research and Demonstration Era--a decade of impassioned dedication to investigation, discovery, and advance along the whole multidisciplinary front.

In the field of the hearing handicapped, significant gains were made in technical knowledge and skill--notably in audiology--for which we have reason to be proud. But regarding "better rehabilitation services," the field has not fared so well. After a decade of opportunity and effort, rehabilitation of the hearing handicapped is still hemmed in by the same problems that have traditionally blocked adequate service to this group, particularly the deaf. The problems are: (a) lack of trained specialists; (b) inadequate organization for total services; (c) breakdown in communication among the team disciplines; (d) breakdown in communication between worker and deaf individual; and (e) indifferent community response.

From the hearing-handicapped person's viewpoint, the most serious problem is the lack of specialists trained to understand his total needs as well as the philosophy and procedures of total service. This lack obtains not only in the areas of audiology and speech pathology but is, if anything, even more acute in the other disciplines involved in his rehabilitation--psychology, counseling, social work, psychiatry, recreation, and vocational placement. The hearing-impaired person bears the direct brunt of the lack of trained specialists; but the field suffers the total crippling effect.

Fortunately, there is a cure for the condition, and that is to fill the gap between need and service with a sufficiency of appropriately trained specialists. To accomplish this requires multidisciplinary training opportunities; and in the course of the past few years, a variety have been offered under the sponsorship of the Vocational Rehabilitation Administration. Numbers of short term workshops, institutes, and special programs have been held for counselors, psychologists, audiologists, religious workers with the deaf, administrators of hearing and speech centers, deaf leaders of the deaf, and others. More recently, longer term programs have been established in five colleges and universities across the country under grants and scholarships from the Vocational Rehabilitation Administration. They are (in alphabetical order) (a)the New York University "Program in Audio-communicative Disabilitiy;" (b) the Oregon College of Education program in "Counseling the Deaf and Hard of Hearing Adult;" (c) the San Fernando Valley State College program of "Leadership Training in the Area of the Deaf;" (d) the University of Illinois program of "Graduate Training in the Area of the Deaf;" and (e) the University of Tennessee "Counselor Orientation Program with the Deaf and the Hard of Hearing." Here is a brief description of each.

The New York University Program. The New York University Program is a multidisciplinary training project offering a two-semester core curriculum in auditory disability to qualified graduate candidates on three levels: (a) a program of study leading to the masters degree; (b) a sixth-year program leading to a Certificate of Advanced Study; and (c) a doctoral program leading to the Ed. D. or Ph. D. degree. The curriculum of the program was designed in the belief that there is a core of basic knowledge about the auditorially disabled which all disciplines should share if they are to work productively with the hearing handicapped and communicate effectively with one another. The program provides this core in the form of ten courses dealing with: the psychology of deafness; the anatomy, physiology, and pathology of hearing; community service programs for the hearing impaired; psycholinguistics; disturbances of communication; principles and techniques or rehabilitation; techniques of communicating with the deaf; research; and field work. Field work in itself is a special program. It is closely integrated with course content and takes the form of a rotating externship through seven types of centers serving the hearing impaired of all ages in the greater New York area. The centers are: the Veterans' Administration Audiologic and Otological Clinics, the Diocesan Apostolate for the Deaf and Hard of Hearing; the Jewish Society for the Deaf; Junior High School #47 the New York Catholic Deaf Center; the New York League for the Hard of Hearing; and the New York School for the Deaf. Each trainee spends a month of supervised practicum and observation at each of these centers before moving on to the next. At the conclusion of field service, the trainees will have been exposed to a broad sampling of clients, techniques, practices, and philosophies which they hear about in class and which they will meet in later professional life. Included in the frame of sampling are: otological examination; audiological instrumentation and techniques; special education; psychological evaluation; vocational evaluation and services; social and counseling services; recreational services; hearing and speech center operations; aural rehabilitive procedures; differential diagnostic problems; and the interdisciplinary approach in rehabilitation. In conjunction with the course in research, the program enjoys affiliation with the New

York School for the Deaf which serves as research center for special studies conducted by trainees under supervision. The specialists that the New York University program has attracted thus far come from the fields of psychology, social work, research, education, reading and language, administration, guidance and counseling, and hearing and speech. Trainees working toward advanced degrees can combine the core courses of the program with advanced study in their respective disciplines, the details being worked out interdepartmentally for each student.

The Oregon College of Education Program. The Oregon College of Education program is a joint enterprise of the College, the Oregon State School for the Deaf, and the Vocational Rehabilitation Administration. The program is a four-week orientation course of study designed to prepare counselors and other professional people to work with deaf and hard-of-hearing adults. Rehabilitation counselors, guidance counselors, placement officers, audiologists, psychologists, social workers, clergymen, sociologists, and other professional workers are eligible. Through the three college-credit courses involved in the program, special problems of deafness are examined, communication skills for conversing with deaf persons are developed, and specific techniques for counseling the deaf are presented. Opportunities are provided for observation of deaf adults at work in various occupations, for conferences with employers and their deaf employees, and for close association with deaf people. Field trips are arranged to various evaluation, training, and educational centers serving the deaf, such as the Portland Center for Hearing and Speech, the Washington School for the Deaf, the Tektronic Corporation, and the Oregon Association of the Deaf. In addition, trainees have an opportunity to live on the campus of the Oregon State School for the Deaf, and every effort is made to provide opportunities for the trainees to work with these students.

The San Fernando Valley State College Program. The San Fernando Valley State College program has the distinction of being the first of these special training programs to be established, less than three years ago. It is designed essentially to prepare personnel in the field of the deaf for leadership roles in local, state, and national programs for the deaf, but it is open to other specialists who qualify. The course of study extends over two college semesters and includes courses in the following departments: (1) psychology - interpersonal relations in leadership; (2) sociology - community resources for habilitation and rehabilitation of the deaf; (3) health - assessment of the problems of deafness; and (4) administration and supervision. In addition to these courses, students are assigned for duties in schools and agencies related to the deaf in the greater Los Angeles area. They also work with administrators, supervisors, of counselors in public and private agencies concerned primarily with the habilitation of the deaf. Students who meet the necessary requirements may qualifiy for the MA degree in Administration and Supervision and the California Administration Credential through this program.

The University of Illinois Program. The University of Illinois program will be underway shortly. The plans call for a long and a short term course of study. The long term training program is designed to provide intensive training on the problems of deafness for persons preparing to become rehabilitation counselors, audiologists, or speech pathologists, and for persons already experienced in work with the deaf who now wish to prepare for specialization in research, college teaching, or administration in this area. All persons in the training program will take a common core of course on the psychological, social, communication, educational, and occupational problems of deafness, with the rehabilitation counselors, audiologists, and speech pathologists majoring in their respective professional areas rather than in the area of deafness. Training will be conducted at masters and doctoral levels. Here, as in the other programs, most of the fieldwork experiences will be integrated with the course work. The facilities utilized will include: the Student Rehabilitation Center and the Speech and Hearing Clinics at the University of Illinois; the Illinois School for the Deaf; the State of Illinois Division of Vocational Rehabilitation; and classes for the deaf and the rehabilitation program in the Champaign Public School System.

The short-term training program will consist of two one-week workshops each year, one in the spring and one in the fall, conducted at the Illinois School for the Deaf. The workshops are designed to give intensive orientation to professional personnel who are likely to provide some services for deaf people but who lack training in the problems of deafness.

The University of Tennessee Program. The University of Tennessee program is a twelve-week college credit course for the orientation of rehabilitation counselors, psychologists, social workers, and others who work with the deaf. The five courses in the program run concurrently for the full twelve weeks and cover the following subjects: the nature of hearing impairments; communication processes for the hearing impaired; introduction to the education and psychology of the deaf; the educational and vocational guidance of the deaf and hard of hearing; and a special problems course assigned to each student in his own area of specialization. Each area of study includes heavy emphasis on the practical application of course content. This is accomplished through observation and actual casework with students from the Tennessee School for the Deaf and patients from the East Tennessee Hearing and Speech Center, as well as clients of the various rehabilitation agencies in East Tennessee. In addition, field trips to key rehabilitation facilities in the Southeast are included in the program to provide orientation to services within a comprehensive rehabilitation setting.

These are the programs. They represent a frontal attack on a key lack in the rehabilitation of the hearing handicapped--the lack of specialists with global orientation to the problems involved in auditory disability. We are finally beginning to train such specialists. Further details about the training programs may be obtained from the following sources:

New York University program: Edna S. Levine, Ph. D., School of Education, New York University, Washington Square, New York 3, New York.

Oregon Colllege of Education Program: William N. Craig, Ph. D., Oregon College of Education, Department of Education and Psychology, Monmouth, Oregon.

San Fernando Valley State College program: Ray L. Jones, Ed. D., San Fernando Valley State College, Department of Instruction, 18111 Nordhoff Street, Northridge, California.

University of Illinois program: Stephen P. Quigley, Ph. D., University of Illinois, College of Education, 1001 West Nevada, Urbana, Illinois.

University of Tennessee program: Norman L. Tully, University of Tennessee, College of Education, Knoxville 16, Tennessee.

AN AUDITORY APPROACH TO THE EDUCATION OF DEAF CHILDREN

Daniel Ling

Among normally hearing children, listening starts from an awareness of sound, is followed by an interest in voice, and proceeds to the association of particular rhythm and intonation patterns of speech with the routine contexts of a baby's life. The finer patterns of speech are perceived and become meaningful within this rather gross framework of tunes, rhythms, contexts and activities. More and more speech patterns are perceived correctly as the baby learns to apply the sounds he babbles spontaneously or uses in echolalic or imitative speech. Thus the acquisition of skill in hearing speech is not merely a sensory process but rather a centrally integrated sensory-motor process, It is intimately tied up with linguistic organization, with the spontaneuous and imitative efforts of the child to speak.

In an auditory approach to the education of deaf children, the natural course of speech and hearing development should be borne in mind, and it should be remembered that with deaf children we are still concerned with a centrally integrated sensory-motor process, i.e., with the whole process of communication and conceptualization, rather than with the treatment of a sensory deficit. It is for this reason that we should, perhaps, avoid the use of the term "auditory training." We do not set out to train a sense but aim so to structure all learning situations that, if possible, audition plays a primary role in the deaf child's communication and conceptualization. The more severly affected the child, the more carefully structured the child's real-life learning situations need to be.

None of the children at present in the Montreal Oral School are totally deaf. All respond to pure tone tests of hearing even if the range of hearing is in some cases extremely limited. The following four groups emerge if the children are classified according to the range of frequencies they can hear:

Group I	230/0 with hearing up to and beyond 4 k.c.s.
Group II	310/0 with hearing up to 2 k.c.s.
Group III	220/0 with hearing up to 1 k.c.s.
Group IV	240/0 with hearing only below 500 c.p.s.

Suitable individual hearing aids are essential if children in each of the above groups are to make use of hearing in learning and communication. With conventional individual hearing aids, children in Group I should be able to hear most of the sounds of speech, discriminate between them, recognize running speech patterns and use hearing as a vital part of living and learning. The extent to which they can succeed in this will depend on many factors, e.g., the quality of the CNS, the etiology and severity of the hearing loss, the age at which deafness occurred or an auditory approach was first made, the quality of the auditory environment, personality, and motivation. For children in the other groups, channel capacity is increasingly restricted. In Group IV, channel capacity is reduced to the point where conventional individual hearing aids reproduce little or nothing within the children's range of hearing but expend their energy over several octaves to which they are completely deaf. It is perhaps useful at this point briefly to examine the rationale underlying the characteristics of conventional individual hearing aids.

The frequency range 300-3000 cps has long been known to workers in the fields of communication engineering, acoustic phonetics, and audiology as "the speech range." It is common knowledge and part of everyday experience that transmission systems using this limited range of frequencies (such as the telephone) yield highly intelligible speech. Good articulation scores are possible within this limited range of frequencies because (a) most of the acoustic components of the various phonemes fall within these limits and (b) speech patterns in conversation are highly predictable (i.e., redundant). The extended range of the so-called "high fidelity" systems of transmission allows further components of speech to be heard, but while the presence of these components may be aesthetically pleasing to us, it adds little to the intelligibility of the speech.

Theoretical and practical examination of the problems met in the design of hearing aids has long been receiving attention (Davis, et al, 1947; Medical Research Council, 1944) and continues to occupy workers both in commercial and in independent fields. For both groups the predominant need has been to design hearing aids which permit high articulation scores, for this is what is required by the majority of the adult deaf and hard-of-hearing populations. Hence the frequency range mentioned above is generally adopted by manufacturers. Where variations in frequency range occur, they rarely exceed an octave at either end of this range.

The majority of deaf adults are people who have lost hearing after acquiring speech amd language. For them, speech patterns remain highly predictable and hearing loss for one range of frequencies can often be compensated for by use of acoustic cues in another part of the speech range. An example of this phenomenon is provided by the work of French and Steinberg (1947) who showed that 67% of nonsense syllables could be heard correctly in all frequencies either above or below 1900 cps were filtered out. Due to redundancy, running speech would be readily intelligible to sophisticated listeners obtaining this articulation score for nonsense syllables. Additionally, for adventitiously deaf people, the memory of voice patterns helps them to monitor their own speech in spite of vastly reduced cues.

In contrast, a deaf child is not a sophisticated listener. A child in Group IV may not spontaneously become aware of speech as a means of communication or attach significance to the gross sounds he may hear. Given a conventional hearing aid designed to help adventitiously deaf adults, a band of less than one octave in width--300 to 500 cps, the lower limit of the hearing aid to the upper limit of his hearing--may be available to him. For such cases hearing within most of the "speech range" just does not exist. However powerful the hearing aid may be, only this narrow channel can be exploited and less than one octave cannot provide adequate sensory information for learning auditorily. In fact, the use of a conventional hearing aid may well be harmful in that the presentation of constantly meaningless patterns may teach the child to ignore whatever sound he may hear. Furthermore, we have noticed deterioration of hearing in the course of training which, in some cases, could well be related to the use of extremely powerful hearing aids (Lockett and Ling, 1963). The indiscriminate use of powerful hearing aids is, in our view, open to question, particularly if equally important auditory cues are available to the child with less amplification by exploiting hearing outside the range of conventional hearing aids.

For children in Group IV then, and initially for children in the other groups, there appears to be a prima facie case for using individual hearing aids which would reproduce frequencies well below the accepted speech range. This gives the children the opportunity to (a) become aware of sound within their range of hearing, (b) become interested in voice patterns (intensity, rhythm, stress, pitch and intonation), and (c) hear components of speech (such as the first formants of some vowels and consonants) which occur below 500 cps.

The fact that such information is carried within the frequency band 50-500 cps and the fact that the power in the speech spectrum is as great at 50 cps as it is at 2000 cps (Fletcher, 1953, p. 78) led us to produce hearing aids with a slightly rising characteristic from 50 cps at which point we were able to obtain a gain of some 40 db. The upper limit of these hearing aids was approximately 5000 cps, for the objective was not simply to provide low frequency reproduction, but a wider characteristic, including better reproduction of the low frequency components of speech than conventional hearing aids. Our rationale was that, as normal speech is imposed on well established and well controlled voice patterns, the more experience we could provide for any deaf child in the low frequency area, where voice patterns are best perceived, the better. However good speech articulation may be among deaf children, poor voice patterns are common. Our prediction was that with adequate low frequency amplification, acoustic feedback of the their own voices in conjunction with better experience of other's would yield more normal voice patterns. This proved to be the case in the small group of children we used in our pilot experiment (Ling, 1963).

For the pilot experiment, six conventional aids were modified by slight circuit change and the coupling of a high quality microphone external to each hearing aid. With more leads to break, these modified hearing aids were a severe maintenance problem even though the microphones and amplifiers were securely harnessed to each child. Fortunately, one of the many hearing aid manufacturers approached with this problem has now been able to produce a small monopack hearing aid which can reproduce the range of frequencies in question. A research programme is now being designed in which these new type individual hearing aids will be used to investigate the role of low frequency amplification in the perception and use of speech by young profoundly deaf children. Although the response of the six children initially investigated and that of further cases in the Montreal Oral School is encouraging, the possibilities and limitations of this work remain to be explored The acoustic cues of normal speech in the very low frequencies are relatively gross, and the information content is therefore not great. Whether such limited channel capacity afforded by defective hearing in the low frequencies, such as is found in Group IV children, could handle the amount of information involved in frequency transposed speech is another problem.

Background noise often causes problems for children with hearing aids. Because room noise (Fletcher, 1953, p. 103) is greater for low frequencies than for high, masking may more readily occur with hearing aids reproducing very low frequencies. To overcome this problem we use hearing aids without AVC and systematically employ a low gain and a high acoustic input to differentiate between foreground (signal) and background (noise). The teachers in our school and the parents of young children in our preschool home guidance program are taught to speak close to the microphone of the child's hearing aid. Using only low gain and a natural voice, the maximum undistorted output from the hearing aid can thus be obtained and the noise problem thus eliminated. This technique is simple to use with deaf babies and in individual play situations with older children where the microphone/speaker distance can be well controlled. It is not generally appreciated that most profoundly deaf children are able to hear whispered speech under these conditions though they may be deaf to a loud shout at one or two feet without suitable hearing aids. To experiment with various gain levels and speaker/microphone distances using a tape recorder is probably the best way to learn about the techniques which one can apply in using hearing aids under various acoustic conditions.

For Groups III and IV children, the advantages of individual hearing aids which will reproduce sound from 50 cps is apparent, for only with the reproduction of the low frequencies is it possible adequately to reach their hearing. In situations in which the speaker/microphone distance can be controlled, there are also obvious advantages in using this type of hearing aid with Groups I and II children, for at the beginning of the auditory approach to their education, preferably in very early infancy, they can thus more easily become aware of voice patterns and their own spontaneous vocalization and babble. However, once good voice patterns are established, suitable conventional hearing aids might have more to offer children in these groups, since hearing in the speech range could be masked by the reproduction of low frequencies in conditions requiring high gain. Having learned voice, speech, and language patterns initially using the fuller frequency range, the redundancy thus acquired should help children in Groups I and II to cope better with high gain hearing aids and to listen effectively in less than ideal signal/noise situations.

In conclusion we should, perhaps, reiterate our aim, which is to structure all learning situations so that audition, if possible, plays a role of primary importance in the deaf child's development of communication skill and conceptualization. The provision of more suitable hearing aids, the techniques in their use, and methods by which we can structure situations to provide the children in our care with auditory patterns at all times are but the means to this end. Our concern in an auditory approach to the education of deaf children with the development and use of available hearing implies neither depriving the child of use of other sense modalities nor the indiscriminate, chaotic, bombardment of the child with competing stimuli. The unthinking reductionism of a general "unisensory" approach on one hand or the blind optimism of a general "multisensory" approach on the other are both likely to yield many failures. Indeed the success of an auditory approach to the education of deaf children depends on our ability as teachers to think critically, flexibly and constructively on the role of audition in our work and to recognize fully its possibilities and its limitations.

Summary

The frequency of hearing aids is examined in relation to the range of hearing present among children in a school for the deaf. The use of individual hearing aids with a frequency response extended to reproduce frequencies from 50 cps is suggested, and

the writer's work in this field to date is briefly described. It is stressed that audition should, if possible, play a role of primary importance in the development of a deaf child's communication skill and conceptualization and that learning situations should be structured, from early infancy, by teachers and parents with this in view.

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VISUAL IMPAIRMENT

AN ABSTRACT OF EFFECTS OF EXPERIMENTAL TEACHING ON THE VISUAL BEHAVIOR OF CHILDREN EDUCATED AS THOUGH THEY HAD NO VISION

Natalie Carter Barraga

The purpose of this teaching experiment was to study the effects of specialized instruction with appropriate materials on the visual behavior of blind children with remaining vision. The investigator sought to determine if the visual functioning of young children could be significantly increased in a short eight-week period as a result of intensive individualized teaching with appropriate materials. The changes in visual efficiency were measured by The Visual Discrimination Test, designed specifically for the study because of the lack of a suitable standardized instrument.

The literature was shown to suggest the ongoing development of the visual process through maturation; and in spite of anomalies of the eye which may hamper the development of visual processes, training and experience appear to act as ameliorating forces in the improvement of visual efficiency (Gesell, 1959; Law, 1960). Eye specialists (Bier, 1960; Ehlers, 1953; Hildreth, 1947) stated that the sharpness of vision had no one true value, and that in children with low degrees of vision, functional behavior was a matter of learning.

Theoretical hypothecations and psychological experiments made it logical to assume that low-vision children may progress in their abilities to conceptualize from visual experiences within the limits of their visual defects and intellectual capacities. Verification of this assumption was inferred by Brown's (1961) notion that one must be prepared for seeing by the "input and confirmation of information from the environment," and that "visual response is to a considerable degree, a learned response."

The paucity of education research regarding the effects of visual impairments, and the lack of experimental research designed to evaluate visual behavior led to the identification of "training and/or learning to see" as the number one problem facing educators working with visually impaired children.

The subjects in this experiment consisted of ten pairs of blind children with remaining vision matched on pretest scores on a test of visual discrimination containing items adapted from reading readiness materials. Educational materials previously presented to these children had consisted of auditory and tactile stimuli, and no instruction in the discrimination and recognition of visual materials had been offered them in the classroom.

A print comparison group which was designated as the criterion group was also included for study. Children conprising this group had only slightly higher recorded distance acuities, but were all using their vision as their primary means for learning.

All of the children included in the investigation were between six and 13 years of age, had Interim-Hayes-Binet IQ's above 80, and were in grades one through five in a residential school for the blind where they had attended since first grade. They were free of any known abnormalities (other than defective vision) which would present additional learning problems.

The experimental children were taken from their classrooms in pairs for daily 45-minute periods over the two-month treatment period. An enriching program in visual stimulation for development and improvement of functional use of low vision was planned and taught by the investigator. An effort was made to induce each child to "learn to see" by offering discriminatory clues to be associated with previously experienced stimuli to enhance visual recognitions. Review of the previous lesson preceded the introduction of new material each day, and, when necessary, entire lessons were repeated two or three times. The entire program was aimed at an overall development of readiness for educational learning by initial use of enlarged materials with high visual appeal prior to the presentation of readiness and primary materials in smaller size and type. The investigator chose to plan and teach lessons for general visual enhancement rather than remediation of specific inabilities; consequently, the pretest performances of children (except for their total scores) were unknown to the investigator until the conclusion of the experiment.

The lessons were planned to evoke maximum proficiency in attention to communication and interpretation of visual observations. Specific activities and lesson plans for the program were developed to follow the four sequential stages for discrimination and recognition of visual stimuli: geometric forms in solid black and in outline shapes; single object forms in solid black and in outline shapes; grouped objects in color and in outline with full inner details; and letter and word symbols. All materials decreased gradually from two inches to one-fourth inch in size down to large type size of a Smith-Carona portable electric typewriter, which had sans serif type spaced at six letters per inch.

Each lesson was carefully planned so that adaptations were possible in order to provide for variations among individuals. Lessons began at the same level for all children, but the rate of presentation varies according to the aptitude and visual functioning of individuals. Evaluation of progress was made by daily score ratings and recorded observations. The Harris Test of Lateral Dominance was administered to the children for consideration of the relation of dominance patterns to the overall performance in visual functioning.

Maintaining the .05 level of significance throughout, an analysis of variance determined the effectiveness of the treatment on the test scores of all groups between the two testing periods. A significant interaction validated the use of appropriate t tests to determine the significance of the differences within individuals and among the different groups. The mean difference in gain scores for experimental Ss was analyzed by use of the t test for related measures. The t value of 4.41 indicated that a highly significant (.005) difference existed in the test scores of children in the experimental group at the conclusion of the experiment. Substantial gains were noted in all subjects' scores with the exception of one.

The difference in the experimental and control group mean gain (matched pairs t test) yielded a t value of 2.78, significant beyond the .05 level of probability. Eight of the ten experimental children achieved gain scores greater than those of their matched controls.

The t test for unrelated measures was used to determine the difference in mean gain between the experimental and print comparison (criterion) groups. The t value of 2.90 provided evidence of a significant (.05) difference in mean gain scores between these groups at the conclusion of the treatment period. These data confirmed the investigator's first hypothesis that a planned program of visual stimulation would enhance the visual functioning of individual experimental Ss, and of the experimental group over that of the control and print comparison (criterion) groups, as measured by The Visual Discrimination Test.

Near-vision acuities were recorded by an ophthalmologist to determine whether or not an increase in near-acuity recordings would accompany changes in visual behavior of experimental Ss. The nonparametric signs test was utilized to determine the significance of the increases. Although positive increases were noted for seven of the ten Ss, the mean increase could not be accepted as significantly different. Seven experimental Ss had postexperiment recordings greater than those of their matched controls; however, no significant difference was evident between the two groups. The postexperiment near-acuity recordings of three experimental children were equal to or greater than those of some children in the print comparison (criterion) group, but this difference could not be considered significant. These data failed to provide evidence that the recorded near-vision acuities would increase or be significantly different between groups as a result of visual stimulation for a short period of time. In spite of the lack of definitive support, children with the lowest degrees of vision appeared to have greater increases in near-acuity recordings than did those whose vision was higher initially.

Analysis of the pretest and posttest scores of all groups permitted additional investigation of the reliability of The Visual Discrimination Test. A correlation of control and print comparison subjects' pretest and posttest scores over the two month period gave a test-retest stability coefficient of .98.

On the basis of these findings, it was concluded that this study:

1. Presents evidence which provides objective verification of the value of visual stimulation programs for blind children with remaining vision.
2. Demonstrates that a short-term intensive teaching procedure would increase significantly the visual efficiency of low-vision children in the first five grades.
3. Contributes to the literature a detailed set of lesson plans and suggested materials which might be used in future educational programming and research.
4. Provides a reliable instrument for evaluation of the visual functioning ability of blind children with remaining vision by use of enlarged and adapted educational materials.
5. Reveals a need for continuous comprehensive appraisal of each child and his efficiency in all learning media before deciding that visual materials are unsuitable for his use in the classroom.

6. Suggests the possibility of the enhancement of educational opportunities for low-vision children by presentation of appropriate visual materials to supplement tactual and auditory media in present use.

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SOME EDUCATIONAL CHARACTERISTICS OF PARTIALLY SEEING CHILDREN

Barbara Bateman

In his recent analysis of education and research in the area of visually handicapped children, Ashcroft (1963) pointed toward the need for investigating the educationally significant characteristics of these children and suitable educational modifications for them. Since the limited available research has been recently reviewed (Ashcroft, 1963; Bateman, 1963), it will not be presented here.

The present study was designed only as an exploratory journey into a wide field relatively devoid of previous research. It was hoped, by looking briefly at certain characteristics of educational programs and of partially seeing children, that clues could be obtained to more efficiently guide further study.

Specifically, the purpose of this exploratory study was to examine relationships among certain educational and psychological variables as they pertain to partially seeing children: type of school program, academic achievement, social adjustment, intelligence, use of low-vision aids, parental attitudes, and degree of vision as described both medically and behaviorally.

Methodology, Subjects, and Limitations

A 20-item questionnaire was designed to obtain categorical information from the teachers of partially seeing children about the academic program (time spent in regular classes, use of large-type books, and low-vision aids), the academic achievement and intelligence (compared to other partially seeing and to normally seeing children), the social-emotional adjustment, parental attitudes, and vision (behavioral and medical) of partially seeing children.

This questionnaire was sent to the 33 special teachers in the state approved programs for partially seeing in Illinois, exclusive of Chicago. One program was excluded due to other on-going research within the program. Responses were obtained from 31 of the 33 teachers. Each teacher completed a questionnaire on every partially seeing child in her program.. Data were thus received for 297 children in grades 1 through 12.

Certain limitations are inherent in this method of data compilation: (a) exclusive reliance on teacher judgment, except for medical vision and measured intelligence; and (b) the crudeness of the three-point scales employed. For these reasons all analyses of data were descriptive or nonparametric.

This report presents a description of the sample and an analysis of two variables: (a) the type of program--resource room (RR), special class (SC), or itinerant teacher (IT)--in which the child is enrolled; and (b) degree of vision.

Description of Sample

The 31 Illinois teachers of partially seeing children completed questionnaires on a total of 297 children, ranging from grades 1 through 12. Resource rooms enrolled a total of 159 children, special classes 100, and itinerant program 38. In some analyses, the 38 itinerant program children were eliminated or treated separately, due to the small number.

Grade. Table I shows the grade placement of subjects by type of program.

TABLE I

Grade and Program of Partially Seeing Children

Program	Number	Grades 1-3	4-6	7-9	10-12
RR	159	56 (35%)	61 (38%)	27 (17%)	15 (9%)
SC	100	36 (36%)	41 (41%)	23 (23%)	0 (0%)
IT	38	13 (34%)	15 (40%)	5 (13%)	5 (13%)
Total	297	105	117	55	20

As was expected, there were no significant differences among the grade level representations within the three programs. The fact that 75% of the partially seeing children in this sample are in grades 6 and below shows a trend toward early identification and service. To a limited extent, it perhaps also reflects an actually larger number of partially seeing children and/or a general decrease in special education services of all kinds at the secondary level. The resource room children in higher grades spend significantly ($x^2 > 40$, 4 df, $p < .01$) more time in the regular rooms than do the lower grade children.

Medical Vision. The teachers were requested to provide visual acuity information for each child exactly as it was recorded in the current report from the eye specialist. All visual acuity notations were converted to Snellen distance acuity equivalents. Binocular visual efficiency was then computed as defined by the AMA section on Ophthalmology (Perera, 1953). The visual acuity of the better eye is weighted three times more heavily than that in the poorer eye. The binocular visual efficiency thus obtained for each subject was then reconverted to Snellen distance equivalents. Categories were set up as follows: I--binocular acuity better than 20/40; II--20/40 through 20/60; III--20/70 through 20/200; IV--acuity less than 20/200.

Table 2 shows the percent of children in each acuity category by type of program.

TABLE II

Medical Vision and Type of Program

Program	Number	I > 20/40	II 20/40-20/60	III 20/70-20/200	IV < 20/200
RR	158	12 (8%)	29 (18%)	76 (48%)	41 (26%)
SC	100	10 (10%)	25 (25%)	42 (42%)	23 (23%)
IT	38	0 (0%)	6 (16%)	22 (58%)	10 (26%)
Total	296	22 (8%)	60 (20%)	140 (47%)	74 (25%)

When categories I and II were combined, a x^2 of 7.4 (.10>p >.20) was obtained which suggests only a possible slight trend roward more severe visual limitations among the children in resource rooms and itinerant programs and slightly milder visual problems among special class children.

Approximately half the children (47%) fall in the visual acuity range 20/70-20/200. One-fourth of the remainder are legally blind and the other fourth (28%) have visual acuity greater than 20/70.

No relationship was expected or found between medical vision and grade.

Behavioral Vision. The teachers were asked to judge each child's visual behavior and indicate which of the following categories best described that behavior:

1. Seldom or never shows signs of visual difficulty. A layman, observing him, would be very unlikely to think of him as visually handicapped.
2. Shows minor, occasional signs of difficulty in seeing, such as turning or tilting book slightly, walking up close to bulletin board or blackboard, slight frowning or grimacing sometimes. Laymen might, if observing at "right moment," suspect child didn't see too well.
3. Often shows definite signs of visual difficulty such as would be readily recognizable by most laymen. Severe frowning or grimacing, head tilting, avoiding activities requiring good vision such as catching a small ball, etc. Sometimes has trouble identifying small pictures, etc.
4. Almost always appears severely visually handicapped. Completely dependent on large type, or "nose on book" reader of regular print, or needs certain lighting. Often drawings done by child reveal gross visual misperception. (Many RLF youngsters fall into this category.)

Table III presents the distribution of obtained ratings by program.

TABLE III

Behavioral Vision and Type of Program

Program	Number	1	2	3	4
RR	153	10%	33%	28%	29%
SC	100	20%	36%	29%	16%
IT	38	21%	29%	24%	26%
Total	291				

There was a slight trend ($x^2 = 9.4$, 6 df, .10>p >.20) for teachers in the special class to rate their children as less handicapped behaviorally than the resource room children. This finding was expected since the medical vision study of the special class children had also suggested that they were slightly less handicapped. Behavioral vision and medical vision correlated positively ($x^2 = 82.10$, 9 df, $p < .001$, C = .47). Among the 153 resource room children for whom both medical and behavioral ratings were available, only 20 showed a discrepancy of more than one category between the two ratings. Of these 20, 14 were seen as less handicapped behaviorally than indicated medically. Similar findings were obtained for special class and itinerant program children.

Intelligence. The teachers were asked to judge each child's intelligence as "above average," "below average," or "average." In addition, they were requested (in a separate item) to provide IQ's from individual psychological examinations when such information was available. Intelligence scores were reported for 20 of the 38 children in itinerant teacher programs, 69 of the 159 resource room children, and 19 of the 100 special class children. Individual intelligence scores were thus reported as available for only 36% of the total 297 children. However, many of the children in this study were known to the investigator from a prior investigation and IQ's were actually available for an additional 20 resource room children and 39 special class children. These additional data are included in Table 4, which presents the distribution of IQ's.

TABLE IV

IQ Distributions

Program	Number	$\overline{IQ}$	< 84 Below Average	84-115 Average	> 115 Above Average
RR	89	99.6	11 (12%)	65 (73%)	13 (15%)
SC	58	98.0	12 (21%)	34 (58%)	12 (21%)
IT	20	100.7	2 (10%)	17 (85%)	1 (5%)
Total	167	99.2	25 (15%)	116 (69%)	26 (16%)

These data correspond to those usually found in studies of partially seeing children and are normally distributed.

Results of Analysis I--Type of Program

Contingency tables were set up and responses to each questionnaire item were categorized by the type of program in which the child was enrolled.

No Differences Among Programs. Chi-square analyses revealed that type of program was unrelated to the following variables as assessed by teacher judgment:

1. Attitude of regular teacher toward having partially sighted child in her room. The teachers of partially seeing, regardless of type of program, judged that 10% of regular teachers were reluctant, 67% were accepting, and 23% eager to have the partially seeing child in their rooms.
2. School achievement in relation to other partially seeing children. One third of the children were rated below average, 44% average and 23% above average. However, when teachers were asked to rate partially seeing children in relation to normal children, their ratings changed to 45% below average and only 15% above average. The implication of this appears to be that teachers of partially seeing children perceive them as achieving less academically than do normal children.
3. Teachers' estimate of children's intelligence. Eighteen percent were rated below average, 58% average and 24% above average. (See Table IV for measured intelligence data.)
4. Behavior or discipline problems. Teachers report that 85% of the partially seeing children are average or above average in classroom behavior, while 15% require more than usual attention for discipline problems.

5. Social acceptance by other partially seeing children. Eleven percent of the children were rated as below average in acceptance by other partially seeing children, 61% average, and 28% below average. However, social acceptance by normal children was less: 20% were less well accepted than average and only 14% above average. This would seem to indicate that to at least a limited extent, the partially seeing are socially excluded. The teachers in itinerant programs were unable to rate children on acceptance by other partially seeing, but rated 87% of them average on acceptance by normal children.
6. Emotional adjustment. The teachers estimated that on an unspecified test of emotional adjustment, 22% would be rated as poorly adjusted, 54% average, and 24% better than average.
7. Parental attitudes toward program. Parents' attitudes were described as negative by RR teachers in 7% of the cases, SC teachers in 10%, and IT teachers in 5%; average by RR teachers in 29% of the cases, 26% of the cases by special class teachers, and 51% of the cases by itinerant teachers; enthusiastic by RR and SC teachers in 64% and by IT teachers in 43% of the cases.
8. Parental attitudes toward child. Three-fourths of the cases were described as "normal" attitudes, 5% as negative or rejecting, and 19% as over-protective or solicitous.

Since the number of children in itinerant programs was only 38 compared to 259 in resource rooms and special classes, they were excluded from some of the above analyses. In every case where the distribution of responses from IT was different than in the other programs, the difference was one of higher percentage of itinerant teacher ratings falling in the "average" category, with proportionately fewer in the two extreme categories.

Differences Among Programs

1. One of the outstanding differences between RR and SC programs is in the amount of time the children spend in the regular grades, as shown in Table V.

TABLE V

Time Spent in Regular Room by RR and SC Children

Program	Number	Part of School Day in Regular Room < 1/3	 About 1/2	 > 2/3
RR	159	15%	38%	47%
SC	100	43%	45%	12%

$x^2 = 37.1$, 2 df, $p < .001$

2. When the teachers were asked in how many subject areas they believed each child could function well with normal children, there was a significant difference between RR and SC teachers, as shown in Table VI.

TABLE VI

Number of Subject Areas in Which Child
Can Compete with Normals

Program	Number	None	Some	Almost All
RR	159	2.5%	50%	47.5%
SC	99	14.0%	47%	38.0%

$x^2 = 12.5$, 2 df, $p < .01$

The data presented in Tables V and VI reveal that: (a) RR teachers report little discrpancy between the amount of time their students are capable of spending in the regular room and the time they actually spend there; (b) the SC teachers see their children as being less able to compete with normal children than is reported by RR teachers; and (c) the SC teachers report a wide discrepancy between the amount of time the children could spend in regular grades and the time they could actually spend there.

These findings obtain in spite of the facts that (a) the RR and SC teachers did not differ significantly on their estimates of the children's intelligence, and what little difference did exist was in the direction of the SC teachers seeing their students as more intelligent, and (b) there were slight trends for the SC children to be less severely visually handicapped than were the RR children.

3. Table VII presents data on the extent to which the children were reported to need large-print books.

TABLE VII

Extent to Which Children Need Large Print Books

Program	Number	Not at all	Sometimes	Always
RR	159	12%	42%	46%
SC	99	3%	74%	22%
IT	38	24%	52%	24%

$x^2 = 34.4$, 4 df, $p < .01$

The RR teachers perceive more of the children as being totally dependent on large print than in the other programs. This is especially interesting in view of the absence of differences in the children's visual status.

A further problem is presented by the data in Table VIII which reveal that RR children make the least use of low-vision aids.

TABLE VIII

Extent to Which Children Utilize Low-Vision Aids

Program	Number	None	Occasionally	Frequently
RR	153	46%	45%	9%
SC	97	23%	66%	11%
IT	38	52%	26%	22%

$x^2 = 26$, 4 df, $p < .01$

Results of Analysis II--Medical Vision

Medical vision (measured as described earlier, see Table II) was not related to the following variables in either the resource room or special class programs: (a) children's perceived ability to function in the regular grades with normally seeing children; (b) school achievement in relation to normally seeing children; (c) discipline and behavior problems; (d) social acceptance by other partially seeing children; or (e) parental attitudes toward child.

Special Classes. For the special class children the only variables which were related to medical vision (See Table IX) were: (a) school achievement compared to other partially seeing children; (b) emotional adjustment; (c) estimated intelligence; and (d) parental attitudes toward the program.

The children with visual acuity greater than 20/70 clustered in the below-average-achievement category, while the legally blind children tended to be above average achievers. A curvilinear relationship was found between medical vision and emotional adjustment, such that the mild visual handicap group tended toward average adjustment, the moderate toward poor adjustment, and the legally blind toward good adjustment. The parents of the more severely handicapped children were seen as more favorably inclined toward the special class program than were the parents of the mildly handicapped group. Mild visual defect was associated with below average intelligence and severe defect with above average intelligence.

TABLE IX

Relations between Medical Vision and Other Variables

	RR		SC	
	x^2	p	x^2	p
Estimated Intelligence	11.11	$< .05$*	12.8	$< .02$
Emotional Adjustment	7.4	$< .20$	15.1	$< .01$
School Achievement (P. S.)	-----	NS	14.5	$< .01$
Parental Attitude Toward Program	-----	NS	7.2	$< .05$
Need for Large-Type Books	14.9	$< .01$	----	NS
Use of Low-Vision Aids	11.1	$< .05$	----	NS
Attitude of Regular Teacher Toward P. S.	8.8	$< .10$	----	NS

*Degrees of freedom vary from 2 to 5.

Resource Rooms. For the resource room children, medical vision was related to: (a) perceived need for large-type books; (b) use of low-vision aids; and (c) estimated intelligence. The more severe the visual defect the greater was the perceived need for large-type books and the less reliance on optical aids. As with the special class children, resource room teachers perceived the more severely handicapped children as brighter than th mild defect group.

A trend was found for the moderate defect group to be the least well accepted socially by normal children. The severe defect group was better accetped, while the mild group clustered toward average acceptance. The moderate defect group appeared least welcomed by the regular classroom teachers, while the severe group was most accepted.

Summary of Results and Discussion

Initial analyses of questionnaires concerning 297 partially seeing children in grades 1 through 12 in Illinois resource room, special class, and itinerant teacher programs indicated the following:

1. Seventy-five percent of the partially seeing children enrolled in special programs are in grades one through six. There was no difference in the proportion of children at each grade level enrollled in the three types of programs--resource room (RR), special class (SC), or itinerant teacher (IT).
2. Eight percent of the children had binocular visual acuity (as computed from most recent eye specialist notations) better than 20/40; 20% had acuity between 20/40 and 20/60; 47% were between 20/70 and 20/200; and 25% were legally blind.
3. Vision, as measured medically, corresponded very closely to teacher's perception of behavioral vision. The few discrepancies that were found were predominantly in the direction of the child behaving as through his visual problem were less severe than indicated medically.
4. The mean IQ (N = 167) was 99.2. Fifteen percent were below IQ 84, 69% between IQ 84 and IQ 115, and 16% above IQ 115. Teachers rated 18% below average, 58% average, and 24% above average in intelligence (N = 297).
5. Resource room and special class teachers did not differ in their responses to items concerning: (a) attitudes of regular classroom teachers toward having a partially seeing child in the room; (b) academic achievement of partially seeing; (c) intelligence; (d) behavior or discipline problems; (e) social acceptance and emotional adjustment of partially seeing; (f) parental attitudes toward program and child.
6. There were significant differences between resource room and special teachers' perceptions of: (a) amount of time children spend in regular classroom (RR spend more); (b) ability of children to compete with normal children (RR more positive); (c) extent to which children need large-type books and and use optical aids (RR more dependent on large type books and use optical aids (RR more dependent on large type and less utilization of other aids).
7. The children with the poorest vision tended to be brighter, to achieve better, and to be better adjusted emotionally. In the resource rooms, but not in the special classes, the children with poorest vision made the greatest use of large-type books.

Since this was only an exploratory study and the data are gross at best, it seems defensible to discuss trends and clusters of findings without reference to statistical significance. The very close agreement of resource room and special teachers' judgments in such areas as emotional adjustment, makes those marked differences which do occur in other areas appear all the more striking.

This investigation appears to confirm the findings of an earlier study (Bateman, 1963 b) which included 59 of these same 297 children and suggested that the children with very mild visual defects fare least well academically. Nothing in the present study contradicts the suggestion (Bateman, 1963 a) that some of these children may initially be placed in the special program because of learning disabilities accompanied by a secondary mild visual problem.

The fact that the most severely visually handicapped children achieve best is probably also related to a selection factor. One of the findings which most urgently seems to call for further exploration is that social and emotional adjustment appear least adequate in the moderately handicapped group.

The most striking difference reported among the programs was in the amount of time the child spends in the regular grades. In the resource room programs only 15% of the children, contrasted to 43% in the special classes, spend less than half their time in in the regular grades. At the same time the resource teachers perceive 97.5% of their children as being able to successfully compete with regular grade children in some to all subject areas, while 85% of the special class children are so perceived. There findings must be viewed against the background of no appreciable differences in the vision, intelligence, or school achievement (as judged by teacher) of the resource room and special class children.

Advantages sometimes attributed to a resource room program include an emphasis on the integration of the children, the special education teacher, and the total program into the regular educational milieu of the school. The lack of differences between RR and SC teachers' judgments in relation to social acceptance of the partially seeing and attitudes of teachers and parents toward the programs perhaps indicates that administrative provisions are not the crucial factors in determining the place of the special education class program and children in the total school setting.

Among the many other questions raised but not answered by this study are: (a) Why was use of large-type books and low-vision aids not related to visual defect in the special classes? (b) Why were only one-fourth of the regular teachers eager to have the partially seeing child in their rooms? (c) Are children enrolled in itinerant teacher programs really "more average" than their counterparts in more segregated groups, or was this an artifact of using teacher judgment as the measuring instrument?

Further analyses of these data and others are planned. Particular emphasis will be given to studying certain subgroups of partially seeing children, e.g., the high achievers, the socially rejected, and the mild visual defect group.

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A COMPARISON OF THE IMAGINATIVE PRODUCTIONS OF CONGENITALLY BLIND AND SEEING CHILDREN IN RESPONSE TO STRUCTURED AUDITORY STIMULATION

Bernard Lax

The idea for this study began in 1952. At that time, other researchers were attempting to explore this same problem. Wilmer and Husni at Stanford were comparing the blind to tuberculosis patients, college students, and schizophrenic patients. Bracerman and Chevigny were attempting to standardize the Auditory Projective Tests with adults at the Institute of Living in Hartford, Connecticut. This researcher directed his attention to a comparison of blind children to seeing children. It was an attempt to extend the knowledge of whether a blind child's imagination is hindered by his visual handicap, and also to determine what differences, if any, might exist between congenitally blind and sighted children in the perception of objective reality. It was also an attempt to investigate these imaginative processes and how they might be revealed to an observer. Louttit, in an earlier study, stated that blind children possessed an ability to "imaginate" on a larger scale than seeing children.

The following questions were raised:

1. Will the absence of sight result in a distortion of objective-reality situations?
2. How does the blind child acquire a true awareness of the outside world?
3. How does a person born blind, or one who has become blind at an early stage in life, react to the lack of vision?
4. Into what paths are these imaginative powers channeled?
5. Is this ability to imagine or to use fantasy more prevalent in the blind than in the sighted?
6. What stimuli might aid in releasing the imaginations of the blind?
7. Could these same timuli serve as a projective technique to aid in understanding these blind individuals?

The attempt to answer these questions was through the use of what this author termed "auditory sound situations" or auditory TAT's. It was hoped that the sounds might serve the same purpose as the visual stimulation of TAT. The sounds were selected on the basis of the familiarity of sound situations which might occur any time, anywhere. The following procedure was used: Fifty everyday sounds were chosen from the sound library of Radio House at the University of Texas. The sounds chosen were placed on tape and played before a freshman college class. Students were asked to choose the sounds that were most familiar or most recognizable. They were not asked to interpret these sounds. The results were tabulated, and thirteen sounds were chosen. The sounds consisted of lullabies, phone ringing, a fire sequence, children playing, a dog barking, an automobile sequence, a storm sequence, dishes falling and breaking with additional background kitechen noises, a country scene, footsteps at a slow pace, a musical sequence that is especially noted for its weird dissonant musical makepu, and a story that was to be completed by the subjects. Time does not permit an analysis of all the findings for each sound sequence, but results produced in the original study reveal differences as to how the sound situations were viewed by sighted and blind children.

Briefly then, the purpose of this study was threefold:

1. To determine in what paths and to what degree the imaginations of the blind are channeled when compared to seeing persons.
2. To hypothesize whether or not the imaginative products of the blind are a compensatory mechanism for their loss of vision.
3. To determine whether there exists a tendency toward verbalism as expressed by Cutsforth and Barker (1950) on the part of the blind in responding to auditory stimulation.

Results

Two groups were employed in this study. The blind children were resident students at the Austin State School for the Blind, Austin, Texas; and the sighted children were chosen from classrooms in the Austin Public School System. The two groups were equated for age, IQ, socio-economic level, etc. A comparison was then possible betwe between the subjects of each group as to which subjects interpreted the basic stimulus situation in the same was as structured by the researcher. By this is meant, how many of each group recognized the sound stimuli for what they actually were and responded in a purely descriptive manner, or how many of them went beyond this descriptive level and created a story through imaginative processes?

The writer employed the criterion that those subjects who grasped the reality elements and went beyond the purely descriptive stages evidenced more imaginative powers than those who did not. This was supported by the findings of Deutsch (1949), Adler (1940), and Muhl (1950). Research of the two groups showed that the seeing totaled 131 interpretations at a purely descriptive level as compared to only 113 for the blind. This was significant at the five per cent level in favor of the blind children's going beyond the descriptive level.

The three instances where the seeing group exceeded the blind group in actual interpretation were situations which represented a real threat to the blind. These were situations that might be expected to awaken anxiety in the blind. They were fears of injury by falling down steps and being struck by a car. They were real life situations that to the blind represented a danger of a physical nature. The results were in accordance with what this research hypothesized would be the answer to the structured materials. It was felt that although the blind did create stories about these situations, their fears of these could not permit them to go much beyond the sound stimuli, and thus their hidden fears were revealed in their stories.

Among other researchers, Barker and Hayes had stated that there is a tendency toward increased verbal products by the blind. The results obtained here seem to agree with these findings. A word count was made of each story, and the results revealed that the blind group far exceeded the seeing group in the number of words per story and also in the total words for each group. The results were significant at the one percent level of confidence. The average of the blind group for each story was, in most instances, twice as great as the average for the seeing group. The small sample of sixteen subjects for the blind as compared to nineteen subjects for the seeing group also revealed an excess of total number of words used by the blind. They also used more words per story, per individual, and per group in replying to each sound stimuli. Another interesting result was that the blind employed less "no response" than did the seeing. (By "no response" the author means that the subject was completely unable to give any sort of answer, descriptive or interpretive, to the stimuli.) The results might indicate that the blind tried as hard as possible to give some sort of answer, however feeble, to the sound stimuli. This seemed to resolve one of the original purposes of the study. The author thus contends that not only do the blind verbalize much more in response to sound stimuli than do seeing persons, but that this verbalization might be a method of establishing some sort of contact with others. It may be an attempt to evolve a technique for overcoming the handicaps of blindness, Adler stated that "if the mind is active on its own part, the handicap may be a stimulus to go ahead." Thus, the active mind on its own part may be translated as the creative imaginative powers of a blind child.

An interesting finding of this study resulted when a survey was made of the expressions of "active and passive violence" in the stories. In choosing what he believed to be active, the author selected the stories that contained some reference to death, dying, severe injury, and destruction of property. Passive violence was minor injury, being frightened by something or somebody, and fear of the situation itself. The content of these stories was judged by three independent judges, each representing a different professional discipline. They listened to the stories and labeled them according to the criterion just expressed as active or passive violence in their content. The judges attempted to analyze each violent story as being the result of expressed aggression, insecurity, fear, or unreality on the part of the blind. (It is highly possible that these interpretations of the story would not have the agreement of other researchers, but it must be remembered that violence as mentioned her covers the specific emotions just stated and should be interpreted with this in mind.) Results are too numerous in terms of each story to mention at this time, but the blind gave a total of 45 stories judged as active violence, while the seeing gave only nine. The blind gave a total of 40 stories judged as passive violence while the seeing children gave 29. The use of structured sound situations seems to indicate to this researcher that this method could be of valuable use as a projective technique. These results seem to agree with those formed by Wilmer and Husni in their study.

The results of this early study seem to indicate that the imaginations of the blind do lie in different paths from those of a seeing person. The stories of the blind are more vivid and more varied than those of the seeing. Within these stories lie more aggression, insecurity, and fear than in the stories created by the seeing in response to the same stimuli. The situations that were regarded by the seeing as commonplace and routine were regarded by the blind as interesting and intriguing and offered an opportunity to be enlarged into more interesting situations. Comparisons made between these two groups revealed a greater verbalism by the blind. Future research along this line might test the hypothesis that, if helped by the right stimuli, the blind would use their imaginations to help fill in the gaps that are existent in their life pictures.

The use of words through the large supply of Braille books or verbal contact with others is not denied to the blind; still the blind, at least, in this first study, did exceed the seeing in number of words employed to complete or tell a story. Looking back upon this early study, the author is aware of a lack of sophistication.

Recently, research has been extended, utilizing subjects in different schools and in different state institutions. Results follow much the same pattern as in the original study. Only last month, test of children furnished some interesting new data. In the original study, a few of the children went home on a weekend basis or even a monthly visit. Their visits were restricted to Christmas and Easter. A pilot study recently performed in the State Institution of the Blind at Muskogee, Oklahoma, revealed that the children who were there on a day basis differed in their story content from those who were residential students. Their stories contained less fear, less indications of insecurity, and contained more references to the sounds as similar to television experiences. The effect of institutionalization is realized and a comparison was thus made between residential students who went home on a weekend basis and those who were not so privileged. The sample in this study was too small to give any conclusive results.

Future research will be directed towards:

1. A comparison of institutionalized blind versus institutionalized sighted children in a private school.
2. The performance of noninstitutionalized blind versus noninstitutionalized sighted.
3. An analysis of the institutionalized groups themselves relative to their status as day students, weekly students, and permanent residents.

It is also planned to increase the number of sound situations and to introduce others from a part of our everyday life and experiences. The sounds to be chosen are still only tentative and will be chosen at a later date.

In summary, it is believed that the use of structured sound stimuli will prove to be a useful and experimental tool in psychiatric investigations and will aid in further understanding of those not blessed with sight.

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BLIND CHILDREN; DEGREE OF VISION, MODE OF READING: A 1963 REPLICATION

Carson Y. Nolan

In 1961, John W. Jones of the U. S. Office of Education published a thorough analysis of the relationships between degree of visual handicap and mode of reading of legally blind children in the United States. This study was based upon data supplied by the American Printing House for the Blind which were obtained in 1961 through the registration of legally blind children under provisions of the Federal Act. "To Promote the Education of the Blind" (amended by Public Law 922, 84th Congress). The thought provoking qualities of Jones' study have led to a demand that the study be replicated. The present report is in response to this interest and compares the data on enrollments of blind children as of January 1960 with those of January 1963.

Procedure

As indicated above the basic data for both studies were obtained from the annual registration of legally blind children. The registration forms contain the name of the school system, the names of legally blind children enrolled in the system, the grade level of each the degree of vision in each eye with correction as reported by an eye specialist, and the reading medium employed by each child - braille, large type, or both. The children were assigned to visual categories on the basis of the corrected vision in the better eye. Other tabulations were made according to the categories, type of school system, grade level, and reading medium. The analysis of the results of these tabulations largely follows that of the original study.

Levels of Vision

The system for categorizing students according to visual level and its rationale can best be described by quoting the original study.

> Vision Level 1 contains children reported as having 20/200 visual acuity, the best or upper level of vision within the legal definition of blindness. Progressively diminishing levels of vision were established in order that data on reasonably large numbers of children with various degrees of remaining vision could be analyzed. It was considered important to attempt only to identify major trends and to keep the numbers of children at each level fairly large, even if this involved grouping together rather wide ranges of vision, instead of grouping by each visual acuity reported. It was hoped that this procedure would increase the validity of the findings, since there was no way to verify how precisely the eye report information about the children was reported or how recently the eye examination on which these reports were based had been conducted.
>
> Wide ranges of vision were reported in many different forms and for purposes of this study were tabulated on the basis of the corrected vision in the better eye and grouped as indicated below:

Vision Level	Visual Acuity or Designation
I	20/200
II	15/200 and 20/300
III	10/200, 20/400. 15/300, 20/500, and 15/400
IV	20/600, 10/300. 15/500, 5/200, 10/400 20/800 and 10/500
V	5/400, 10/800, 5/800, 5/500, 2/200, 1/300 to 1/500, 20/1,000 to 20/4,000 and 2/400
VI	Counts fingers
VII	Hand movement
VIII	Light perception
IX	Totally blind

> A great variety of visual acuities were reported. For study purposes there were rounded and grouped according to the nearest classification:
>
> 2/200 includes all reported as either 1/200 or 2/200
> 5/200 includes all reported as 3/, 4/, 5/, 6/, and 7/200
> 10/200 includes 8/, 9/, 10/, 11/, and 12/200
> 15/200 includes 13/, 14/, 15/, 16/, and 17/200
> 20/200 includes 18/, 19/, and 20/200
>
> The same pattern was followed for children tested on the 300-, 400-, 500-, 600-, and 800-foot symbols. Those reported within the 20/1,000 to 20/4,000 range were grouped together because of their small number.
>
> The counts fingers category (vision Level VI) includes those reported as such or for whom the notation "C. F." was made. Children classified under hand movement (vision Level VII) include those reported

as being able to distinguish hand movements or those for whom the notation "H. M.," gross form, object perception, or light perception was made. Tabulations were made of the distances at which children were able to count fingers and perceive hand movement. Resulting sub-classifications contained so few children in each, however, that valid generalizations based on such small groups could not be made. It was impossible, also, to determine to what extent eye specialists had attempted to ascertain the distance at which each child could count fingers or perceive hand movements or whether such findings had been reported if they were available. The vast majority of children in the hand movement level were reported, for instance, only as perceiving hand movement; distance was not specified.

The light perception vision level included those children reported with this notation of for whom "L. P." was listed. This level may include some with light projection, inasmuch as it was not possible always to differentiate between the two in the basis of the information in some of the reports. The classification totally blind contains those so reported and those with such notations as: "none," "enucleated," and "prosthesis."

In 1963, 138 children were registered as having restricted fields as compared to 74 in 1960. As before, this group was not included in the analysis as a separate level of vision. No separate tabulation of these children was made in the present study.

In 1960, "approximately 450 registrants were not included in the tabulations because they could not be fitted into one of the classifications." In 1963, this number rose to 552. This group included students whose vision was reported in unusual or ambiguous terms, who were clearly identified on the registration forms as deaf-blind, cerebral palsied or mentally retarded, or those for whom the grade level was ambiguous. In 1963, after removal of adult rehabilitation cases, the total registration of legally blind children was 17,110 as compared to the 14,574 reported in the initial study. This constitutes an increase in registration over a three year period of 2,536 children. In 1963, 9,438 children were enrolled in local school programs as compared to 7,366 in 1960. A similar comparison for residential schools in 7,672 children in 1963 and 7,208 in 1960.

Major Findings on Visual Levels

Table 1 presents a comparison of the proportion of legally blind children falling in each visual category for each of the years studied. In this table, as in others, all proportions have been rounded to the nearest one-hundredth and as a consequence the total sums for the proportions may fall to equal one exactly. A quick inspection of this table reveals that the distribution of proportions are essentially the same for the two years. There is a decrease of 2% in the relative proportion of children registered as totally blind and an increase of 3% in the number of children registered as having vision of 20/200. Smaller fluctuations can be noticed in come of the categories. None of these shifts appear large enough to have practical significance.

TABLE 1

Comparison of Distributions of Degree of Vision

	Visual Categories								
	I	II	III	IV	V	VI	VII	VIII	IX
1960	.31	.04	.09	.04	.02	.06	.03	.16	.24
1963	.34	.05	.09	.05	.01	.06	.03	.15	.22

Table 2 is a comparison of local and residential students by degrees of vision for the years 1960 and 1963. Again there is little change in the distributions over the three year period. It does appear that the decrease in totally blind children has occurred primarily in the residential schools and that the increase in children reported as having 20/200 vision has occurred primarily in the local schools. Reasons for this are not apparent in the data.

TABLE 2

Comparison of Local and Residential School Registrants
by Degrees of Remaining Vision

	Visual Categories								
	I	II	III	IV	V	VI	VII	VIII	IX
1960									
Local	.43	.05	.10	.05	.01	.04	.02	.11	.18
Resident	.17	.03	.08	.04	.02	.09	.05	.22	.30
1963									
Local	.46	.05	.10	.04	.01	.04	.02	.10	.18
Resident	.18	.04	.08	.05	.02	.09	.05	.21	.28

The tendency for children of greater visual acuity to be enrolled in local school program and those of less visual acuity to be enrolled in residential programs is almost identical for the two periods. However, both systems still must meet the requirements of designing programs which will accommodate wide ranges of residual visual abilities.

As Jones commented previously (p. 21-22) the peculiar U-shaped forms of the distributions probably reflect lack of validity in the data as the result of variations in recency of eye examinations, heterogeneity among communities and states in standards for eye examinations and myriad other reasons.

Mode of Reading in Relation to Degree of Vision

TABLE 3

Comparison of Distributions of Mode of Reading
by Visual Categories

	Visual Category									
	I	II	III	IV	V	VI	VII	VIII	IX	Total
1960										
Braille	.12	.26	.32	.45	.64.	.71	.91	.99	1.00	.58
Large Type	.82	.68	.59	.46	.31	.24	.07	.01	.00	.38
Both	.06	.06	.09	.09	.05	.05	.02	.00	.00	.04
1963										
Braille	.09	.15	.24	.43	.71	.64	.91	.98	.99	.53
Large Type	.86	.77	.67	.47	.22	.28	.06	.02	.00	.43
Both	.05	.08	.09	.10	.07	.07	.03	.07	.00	.04

Given in Table 3 is a comparison for 1960 and 1963 of distributions of modes of reading by visual categories. As before we find the degree of residual visual related to the reading medium: the greater the remaining vision the greater the tendency to read print and the less the remaining vision the greater the tendency to read braille.

Inspection of the total proportions reading each medium reveals a decrease of 5% in the proportion of students reading braille and an increase of 5% in the proportion reading large type. Further inspection of the table indicated that the shift from braille to large type occurred primarily among readers falling within visual categories II and III where the shift to large type is of the order of 8%-9%. A shift of 8% is also apparent for readers in visual category VIII; however, here the shift is toward reading both media.

TABLE 4

Comparisons of Proportions of Large Type Readers
by Visual Level for Local and Residential Schools

	Visual Level								
	I	II	III	IV	V	VI	VII	VIII	IX
					1960				
Local	.92	.83	.77	.65	.50	.44	.18	.01	.00
Resident	.50	.29	.30	.20	.14	.14	.02	.00	.00
					1963				
Local	.92	.86	.80	.60	.38	.50	.13	.04	.01
Resident	.65	.61	.45.	.32	.12	.16	.03	.00	.00

Table 4 compares the proportions of large type readers in each visual category for local and residential schools in 1960 and 1963. While differences as large as 12% exist in proportions of print readers falling within distinct visual categories for local school students, no systematic change is apparent over the three year period. The observer may raise an eyebrow over the 1% of local school students in Category IX (totally blind) who are listed as print readers. Depending on whether his outlook is optimistic or pessimistic, he may view this either as evidence for the occurrence of a minor miracle in the public schools or evidence of lack of validity in the reports for this group.

Inspection of similar data for the residential schools reveals a shift from braille to print reading in six of the nine visual categories. This shift is quite dramatic, ranging from 12%-32%, in visual categories I-IV. This shift is also demonstrated by the data in Table 5 which allow comparison of proportion of braille readers by visual level for local and residential schools.

TABLE 5

Comparison of Proportions of Braille Readers by Visual Level
for Local and Residential Schools

	Visual Levels								
	I	II	III	IV	V	VI	VII	VIII	IX
					1960				
Local	.05	.13	.16	.28	.42	.52	.78	.99	1.00
Resident	.35	.62	.58	.69	.84	.80	.97	.99	1.00
					1963				
Local	.04	.08	.12	.29	.58	.41	.82	.94	.99
Resident	.25	.28	.44	.59	.79	.78	.95	.99	1.00

No systematic changes in proportions of students reading in both media at the several visual levels for either local or residential schools are found between the years 1960-1963. However, the data in Table 6 indicate that differences previously reported between local and residential school have diminished.

TABLE 6

Comparison of Proportions of Students Reading
Both Braille and Large Type in Each Visual Category

	Visual Category								
	I	II	III	IV	V	VI	VII	VIII	IX
					1960				
Local	.03	.04	.07	.07	.08	.04	.04	.00	.00
Resident	.15	.09	.12	.11	.02	.06	.02	.00	.00
					1963				
Local	.04	.06	.08	.11	.05	.09	.04	.02	.00
Resident	.10	.12	.11	.09	.08	.06	.02	.00	.00

In Table 7, local and residential schools are compared for the years 1960 and 1963 for proportions of students having vision of object perception or better (categories I-VII) and vision of light perception or worse (categories VII and IX). When populations are divided in this manner, little difference is apparent among the data from the different years. School populations appear stable in this respect.

TABLE 7

Comparison of Local and Residential Schools for Proportions
of Students Having Vision of Object Perception or Better
and Vision of Light Perception or Worse

	Visual Categories			
	I-VII		VII-IX	
	1960	1963	1960	1963
Local	.71	.72	.29	.28
Resident	.48	.50	.52	.50

The proportions of students in local and residential schools who possess object perception or better are reported according to reading media for the years 1960 and 1963 in Table 8. For local school systems, the data for the two reporting periods are essentially the same. In the case of residential school programs, a shift of 12% from braille to print reading is apparent.

TABLE 8

Comparison of Modes of Reading of Students with Vision of Object
Perception or Better in Local and Residential Schools

	Braille	Large Type	Both
		1960	
Local	.14	.82	.04
Resident	.61	.29	.10
		1963	
Local	.12	.83	.05
Resident	.49	.42	.09

The great differences between local and residential school systems in the proportions of children in visual categories I-VII reported as reading print was a matter of concern in the 1960 study. It is encouraging to see evidence of a strong tendency in the residential schools toward making a more realistic match between degree of residual vision and reading medium. No doubt many factors have been influential in stimulating this shift. Among these are undoubtedly the influence of the 1961 report, greater knowledge and emphasis on visual efficiency, use of vision and optical aids and greater stress on adequate individual diagnosis and treatment.

Grade Distributions

The distributions by grade for blind students for the years 1960 and 1963 and for total United States school enrollment for the years 1958-1959 (Schloss, et al., 1961) are compared in Table 9. The 1963 data for the blind appear to more closely resemble those for the U. S. total enrollment than was the case in 1960. Also reported in this table are the proportions of blind students reported as ungraded. This proportion increased by 33% (from .06 to .08) over the three year period dividing the studies, with 1,348 blind children reported as "ungraded" in 1963.

TABLE 9

Comparison of Grade Distributions of Blind Students
and Total Enrollment in U. S.

	Grade Level													
	K.	1	2	3	4	5	6	7	8	9	10	11	12	Ung.
Total U. S. (1958)	.05	.10	.10	.09	.09	.09	.09	.08	.07	.07	.07	.06	.04	
Blind (1960)	.07	.15	.11	.10	.08	.08	.07	.07	.05	.05	.04	.03	.03	.06
Blind (1963)	.03	.09	.09	.11	.11	.09	.08	.07	.06	.06	.05	.04	.04	.08

Grade distributions for total U. S. enrollment and braille readers and print readers in 1960 and 1963 appear in Table 10.

TABLE 10

Comparison of Grade Distributions of Readers of Print
and Braille and Total Enrollment in U. S.

	Grade Level													
	K.	1	2	3	4	5	6	7	8	9	10	11	12	Ung.
Total US (1958)	.05	.10	.10	.09	.09	.09	.09	.08	.07	.07	.07	.06	.04	
Braille (1960)	.10	.18	.11	.10	.08	.07	.06	.06	.04	.04	.04	.03	.03	.06
Print (1960)	.02	.10	.11	.11	.10	.10	.09	.09	.06	.05	.05	.03	.03	.06
Braille (1963)	.05	.09	.09	.11	.11	.09	.08	.06	.05	.05	.05	.03	.03	.09
Print (1963)	.01	.08	.09	.11	.11	.10	.09	.07	.07	.07	.06	.04	.03	.06

These distributions resemble each other quite closely with the exception that much higher proportions of students appear in kindergarten and grade 1 in 1960. This phenomenon was specifically pointed out by Jones (p. 27-28) and its possible causes listed. Among these was mental retardation. In 1963 the data suggest that mental retardation may have been a principal cause. While no change in proportion of "ungraded" students was reported for print readers, the proportions of braille readers classified thus rose from .06 in 1960 to .09 in 1963, an increase of 50%. It is suggested that an accumulation children of low academic aptitude was partially responsible for the pile up of braille readers in kindergarten and grade 1. The pressure generated by this pile up generated the dramatic increase of 50% in the proportion of braille readers who were classified as "ungraded." However, this cause could account for only about 50% of the children involved. Some of this group appear to have progressed normally to grades 3 and 4 since these two grades contain a larger proportion of children in 1963 than do the others. Some have undoubtedly been transferred to other types of programs.

A similar comparison involving readers of both braille and print is given in Table 11. The 1960 and 1963 distributions resemble one another closely and do not depart radically from the distribution for total enrollment or from the 1963 distributions for braille readers and print readers.

TABLE 11

Comparison of Grade Distributions of Readers
of Both Print and Braille and Total Enrollment in U.S.

	Grade Level													
	K	1	2	3	4	5	6	7	8	9	10	11	12	Ung.
Total US (1958)	.05	.10	.10	.09	.09	.09	.09	.08	.07	.07	.07	.06	.04	
Both (1960)	.03	.11	.07	.08	.08	.07	.09	.12	.06	.07	.06	.04	.04	.07
Both (1963)	.01	.06	.09	.10	.10	.08	.09	.08	.06	.08	.05	.05	.07	.06

Table 12 compares grade distributions for large type readers in local and residential schools for 1960 and 1963. The differences between the distributions for local and residential schools appear to be fewer in 1963 than in 1960.

TABLE 12

Comparison of Grade Distributions for Large Type Readers
in Local and Residential Schools

	Grade Level													
	K	1	2	3	4	5	6	7	8	9	10	11	12	Ung.
							1960							
Local	.02	.10	.12	.11	.10	.11	.09	.08	.06	.05	.04	.03	.02	.06
Resident	.04	.10	.07	.08	.08	.08	.09	.10	.06	.07	.06	.04	.03	.09
							1963							
Local	.01	.03	.10	.12	.11	.10	.09	.07	.07	.06	.05	.04	.03	.06
Resident	.02	.08	.08	.09	.08	.08	.09	.08	.06	.07	.08	.05	.04	.08

Summary of Differences: Comparison of 1960 and 1963 Data

1. The total number of legally blind children registered with the American Printing House increased by 2,356 children during the period. Of these, 2,072 were enrolled in local school programs and 464 were enrolled in residential school programs.

2. Between 1960 and 1963 the percentage of students listed as braille readers decreased 5% and the percentage of students listed as print readers increased 5%. This appears due primarily to a dramatic increase in the proportions of residential school students in visual categories I-IV who are listed as print readers.

3. In 1963, 12% more residential school students possessing object perception or better were registered as print readers.

4. The number of legally blind students classed as ungraded in 1963 was 1,348. This was a 25% increase over the number of students so reported in 1960.

5. The accumulation of braille readers in kindergarten and grade 1 so evident in the 1960 data does not occur in the 1963 data. The 50% increase in the number of braille readers classed as "ungraded" suggests that this peak in the 1960 distribution for grades was partly the result of an accumulation of children of limited academic aptitude.

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THE ESTABLISHMENT OF SCHOOL AND COLLEGE ABILITY TEST NORMS FOR BLIND CHILDREN IN GRADES 4, 5, AND 6

Margaret Adelle Pearson

After the development of the Binet-Simon Tests of intelligence in 1905, several revisions and adaptations were published. From these revisions educators became especially interested in adapting these tests for use with the blind. In 1914 Irwin, a blind educator, and Goddard, a translator of the Binet-Simon Tests into English, adapted these tests for use with the blind. A statistical comparison on Terman's study with sighted children indicated that the new Irwin-Binet adaptation was fairly satisfactory in classifying the intelligence of blind children. As a consequence, educators became more acutely aware of the need for a better revision of the Binet. Out of this awareness grew Irwin and Hayes's Scissors and Paste Guide of the Binet-Simon Intelligence Tests; Hayes's Condensed Guide of 1930; and, finally, an adaptation of Terman and Merrill's revision known as the Hayes-Binet. The Hayes-Binet is recognized today as the outstanding measure of individual intelligence for the blind. However, due to the lack of trained personnel, the use of this test is limited. The Wechsler Intelligence Scale for Children is preferred in schools for the blind for measuring the intelligence of each student because of the ease in administration, scoring, and interpretation by the untrained examiner.

After this revolutionary development of the Hayes-Binet, an individual intelligence test for blind children, the field of group testing evolved. Some of the group tests which were successful with the sighted were adapted for use with the blind, but IQ's obtained from these group intelligence tests were significantly lower than those obtained from the Hayes-Binet and the WISC. Consequently, the present study was concerned with the construction of group intelligence test norms for blind children in the intermediate grades.

The Study

Due to the lack of valid and reliable group instruments for measuring intelligence of the blind, this study was conceived. The SCAT, a valid and reliable instrument for testing the intelligence of sighted children, was used in this study. The SCAT was selected because it is easily administered, scored, and interpreted; it permits comparison of scores from form to form; it yields both a verbal and a quantitative score, as well as a total score; and it is a group paper and pencil test of scholastic aptitude which is easily transposed for the purpose of this study.

Permission was obtained from the publishers of SCAT to transcribe and multigraph Form 5A into Braille Form for use with the totally blind students, as well as to print the test in large type for use with the partially sighted children. Permission was also obtained to record Form B on magnetic tape for use with both Braille and large-type readers. Appropriate answer sheets were transposed for recording answers for Form B.

The primary purpose of this study was the construction of group intelligence test norms for blind children.. Because it is important that the selection of the norms sample be drawn in such a way as to minimize the inevitable sampling errors in the norms table, simple cluster sampling was utilized. All students in grades 4, 5, and 6 attending seven residential state schools for the blind in the south central region of the United States were tested. Out of 236 children who were totally blind or partially sighted, only 197 white students' scores were used, since the distribution of scores for other races was too small to warrant the construction of norms. After the raw scores were obtained by hand scoring, the scores were then converted through use of conversion tables which appear on the back of the SCAT scoring stencils.

While the major emphasis of this study was upon the construction of norms, it seemed warranted to determine if statistically significant differences between converted score means existed among grades and froms of the test. The *t* test was employed to test the hypothesis that no true mean differences existed between either grade or test forms. In order to determine whether the observed differences in means by grade were true or chance differences, *t* tests were applied to the data for the verbal, quantitative, and total converted mean scores by test form. The Pearson product-moment coefficient of correlation was computed between SCAT (Level 5), converted scores for Forms A and B, and WISC scores for the combined grades 4, 5, and 6. Local SCAT norms were established for the purpose of interpreting test scores attained by partially seeing and blind children in the intermediate grades of seven residential state schools for the blind by following the statistical procedure as set forth in the *SCAT Manual for Interpreting Scores*.

The Findings

The null hypothesis was rejected for the differences between performance on the written form of the test and the oral form at grade 4, except on the verbal part of the test for large-type readers where the null hypothesis was accepted. Where true differences existed, the performance was in favor of oral presentation. At the fifth and sixth grade levels, no statistically significant differences were found.

The mean difference between grades 5 and 6 of Form A (written) for the verbal, quantitative, and total scores for large-type readers was only a chance difference; hence the null hypothesis was accepted. A chance difference also occurred between grades 4 and 5 of the verbal scores on Form B (Oral). In all other cases the null hypothesis was rejected, which indicated that the mean performance on the tests was significantly greater for each subsequent grade. A similar interpretation was made for the Braille readers.

For large-type readers on Forms A and B, verbal subtest, the correlations were found to be in the high correlation range, which indicated a marked relationship between the verbal abilities and the intelligence quotient for these readers. Correlations for the quantitative subtest of Forms A and B fall within the moderate correlation range, which showed a moderate relationship between quantitative abilities and intelligence quotient test scores for large-type readers. It can be concluded that this test used as a measure of scholastic ability for large-type readers was tenable. For Braille readers on Forms A and B, verbal subtest, the correlations were in the moderate correlation range with a substantial relationship between verbal abilities and intelligence quotient test scores. On the quantitative subtest for Forms A and B, the correlations fell within the low correlation range with a definite but small relationship present for Braille readers.

Local norms were established for large-type and braille readers in the combined fourth, fifth, and sixth grades attending seven residential state schools for the blind.

The Implications

The number of valid and reliable instruments for measuring the intelligence of blind children in a group situation is meager. It is the responsibility of educators interested in the blind to develop and adapt more effective instruments for the measurement of the intelligence of the blind. Most of the measuring instruments now avilable for sighted children can be utilized for large-print readers. However, additional research is needed in the area of development of tests which measure scholastic ability for Braille readers. The problem encountered in the needed research for Braille readers is in the development of a test of intelligence which requires no vision, yet measures verbal and quantitative abilities.

From the outset, the major desired outcome for this investigation was the establishment of local norms for use with blind children in residential state schools for the blind. Only 197 students in seven residential state schools for the blind were utilized in this study, and it should be emphasized that additional research should be accomplished by sampling a larger population and thereby establishing national norms for the blind.

PROBLEMS, PRACTICES, AND PROGRESS IN TEACHER TRAINING PROGRAMS FOR THE VISUALLY HANDICAPPED

Evelyn Rex

Problems—Practices—Progress. There is a greater relationship between these three words than the mere repetition of a sound. There are problems in the preparation of teachers of the visually handicapped; they often arise from our current practices; and, hopefully, our progress occurs when we are alert to the problems and make an attempt to alleviate them.

Just now the number of problems may appear to outweigh the practices and progress. This seems justifiable. The stage at which we find ourselves in the preparation of teachers of exceptional children may be compared to the adolescent stage in human development. Programs are still relatively young. They have had to seek guidance and help from their elders during their early development. Programs are patterned from general education, and one area of special education has patterned itself from another. It has been necessary to comply with standards set by such agencies as the National Council for Accreditation of Teacher Education, with the standards of individual colleges and universities, with state certification requirements, and so forth. Such guidance was necessary during the early growing stages.

We have now reached the stage at which we are still influenced by and must not lose sight of this early guidance but must begin to move toward the next stages of our growth and the establishment of our own individuality and the individuality of each area of special education. There must be a certain amount of uniqueness to our programs of preparation of teacher of the visually handicapped as well as commonality with other programs of teacher preparation and special education. We have reached the stage at which which we must look at our specific programs, not teacher education in general. We have begun to do this and, as a result, are aware of our problems and their magnitude, are aware of our need to retain certain practices and change others if we are to make progress.

Enough of rationalizations and generalities. Let us move to the specific. We may begin with a description of the kinds of programs currently preparing teachers of the visually handicapped. They are: the four-year program leading to the bachelor's degree, the Master of Arts in Teaching (MAT), or five-year program selecting students at the beginning of the junior level, the one-year master's degree program, and the program often designated the sequence by which teachers meet requirements for certification as teachers of the visually handicapped.

Recruitment and Selection

The problems of preparing teachers of the visually handicapped are not confined to the training center; they reach much further. This is evident when we state that one of the first problems is that of recruitment and selection.

Recruitment of teachers comes only with the awareness of visually handicapped persons and the need of educating them. Such an awareness does not come easily, since contact with visually handicapped persons is limited due to the small numbers in comparison to other areas of exceptionality. In a recent study (Gottfried and Jones, 1963) of students in special education, 96% of those majoring in the area of the visually handicapped had had no previous contact with such persons, but of those students majoring in other areas of special education only 43% to 65% had had no contacts with the type of exceptional child they planned to teach.

Much of the recruitment can be done by the teachers of visually handicapped children. They are in the prime positions for making people aware of these children and the need of persons to teach them. Many are meeting this problem through excellent practices. They speak at Career Days and FTA meetings, and they provide opportunities for observation and volunteer services for persons interested in the visually handicapped child. Many national and local organizations provide scholarships for those interested in preparing to teach the visually handicapped. This, certainly, is progress.

With recruitment comes concern in the selection of candidates. Careful selection will improve the quality of teaching services and increase the supply by enhancing the status of teaching visually handicapped children. The predicted increase in college enrollment will give further cause for careful selection. The matter of selection is a difficult one. We want to select those persons who will make good teachers of the visually handicapped. What qualities are necessary? An American Foundation for the Blind (AFB) publication (1961) states it thus: "In addition to high motivation and the and the academic ability required, prospective teachers should show evidence that they can function as superior teachers, that they can relate positively to children and adults and that they have an objective yet sympathetic attitude toward problems of disability." The competency studies done by the USOE (Mackie and Dunn, 1955; Mackie and Cohoe, 1956) indicate that the qualities which make a good teacher of the visually handicapped are those needed by a good classroom teacher plus specialized knowledge, skills, and abilities and additional quantities of patience, understanding, sympathy, and a sense of humor. Perhaps our practice and our progress here has not been so excellent. Have we, like much of education, assumed teaching to be a unitary item and in our selection failed to differentiate prospective teachers of the visually handicapped from other prospective teachers? Are teachers of the visually handicapped perhaps more unique than we have assumed them to be? Are the differences truly only those of degree rather than kind? The only way in which further progress can be made in this area is through the study of characteristics and effectiveness of teachers. Much of the groundwork for such study has been laid by other areas of education. It is now a challenge to graduate students, in-service teachers, supervisors, and administrators to pursue such study and research if we are to truly to progress.

Roles or Scope of Preparation

Another problem in teacher preparation is that of the role for which we are preparing persons. It becomes an issue in selection, in curriculum development, in the opportunities for professional laboratory experiences. We surely need a very flexible and adequate program and staff to prepare the student for roles as residential, resource room, or itinerant teacher, to prepare them to teach at both the elementary and secondary levels, to prepare them as counselors and efficient public relations personnel.

The practice has been to provide a basic core and to call upon various resources to to provide observations of and contact with persons in each of the roles and at each of the levels. In-service training and graduate study strengthen the understanding of each role and give opportunities to function more effectively in various roles. We can make progress in this area by involving more staff in a team approach and by increasing the professional laboratory experiences.

Curriculum

From competencies and roles of teachers we move logically into the problems of curriculum. Certainly the ultimate criterion of a program to prepare teachers of the visually handicapped is the student's effectiveness as a teacher. The teacher preparation center must accept the primary responsibility of preparing an effective teacher and must do this to a great extent through its curriculum and the interpretation and presentation of it by its staff. Some of the most difficult problems are in this area.

Problems in planning curriculum would be greatly reduced if there were more knowledge of the kinds of persons who choose this field, more knowledge of the qualities these persons will need to be competent teachers, and more knowledge of the visually handicapped children we are preparing them to teach.

The present practice is to fall back on the assumptions that visually handicapped children are basically not different from other children and that teachers of the visually handicapped are basically not different from teachers of other children. We provide a curriculum which prepares and certifies them both as teachers of normally seeing children and or visually handicapped children.

The practice in a four-year program is to first provide the basic courses required of regular elementary teachers beginning with the same nonprofessional elements such as English, science, social studies, and mathematics. These are usually completed within the first two years. By the second year general education courses such as Introduction to Teaching, Child Development, and General Psychology have been included in the curriculum. From the third year the curriculum is comprised largely of professional education courses and practicum. A most important aspect of the professional education curriculum is, of course, the specialized curriculum for teachers of the visually handicapped. Basic to this specialized curriculum is at least one course covering the broad area of exceptionality. Some colleges provide several courses in their curriculum covering an introduction to the educational, physical, or psychological aspects of exceptional children. Such courses frequently employ the combined efforts of the special education staff. Besides the courses in the broad area of special education, ths student preparing to teach the visually handicapped includes specialized courses in his area. The sequence of specialized preparation usually includes a study of the characteristics of the visually handicapped, a study of teaching methods and curriculum adjustment need, braille skills, and observation and student teaching practicum.

The practice in the five-year program is to fill the first four years with course work similar to that mentioned above and devote the fifth year to professional laboratory experiences described as internship. Such a program is not new to education but is only now beginning to emerge in special education.

The practices at the graduate level are less complex. The student usually concentrates on the specialized sequence and a broad interest in the other areas of special education, in guidance, and in other related fields. Occasionally, when a degree is not being pursued, only the special sequence is undertaken.

These are the practices in the curriculum offered to students. The problems are numerous. They begin early in the program when careful attention needs to be given to the nonprofessional elements of the curriculum. This is of particular concern when we consider that the teacher of the visually handicapped will guide her children in various subject matter areas from first grade through high school. Her knowledge in many areas must be adequate if her children are to succeed in their academic program.

Problems also occur at that point at which the student must forfeit courses in general and professional education in order to work in the specialized courses. The student may be deprived of valuable elements of his preparation. We may be deluding ourselves that we are preparing him adequately as a teacher of sighted children. This is a problem which needs some consideration of we are to progress in our preparation of these teachers.

Perhaps the most glaring problems lie in the specialized curriculum itself. The elements to be included are, of course, a matter of particular concern. Some agencies, such as the National Society for the Prevention of Blindness, have set minimum standards for this specialized curriculum. These serve only as a point of departure. However, there is the question of what to include above and beyond the minimum. Perhaps there is a need for encouragement to meet standards beyond this minimum. There is danger in too much rigidity in standards but a plea for some consistency and some equality of preparation seems in order.

Besides the standards for the sequence of courses, there is a need for standards regarding course content and proficiency resulting from completion of such courses. Progress has been made in the American Association of Instructors of the Blind's attempt to set standards for degree of competency or proficiency in braille. Perhaps there is a need to require further proof of proficiency as a requisite for certification rather than the arbitrary use of such examinations that is presently the practice. Before standards are set in the content of course, change may well need to take place. Bowers (1963) phrases this problem so well when he says, "We need to place more emphasis upon curriculum development rather than upon curriculum adaptation." He comments that this is especially true in those areas peculiar to blindness such as cane travel, braille skills, shop and laboratory skills. He further comments upon the lack of basic research into those materials and teaching techniques best suited to the learning needs of visually handicapped children and the lack of studies concerning present teaching practices. He wonders how we justify our present specialized methods courses.

Plainly, change is needed in the curriculum of the programs for the preparation of teachers of the visually handicapped. In this case, change can mean progress. The AFB in its publication A Teacher Education Program for Those Who Serve Blind Children and Youth (1961) proposes a plan toward which we appear to be moving. The total pattern of preparation is divided into three areas as follows:

Area I - An introduction designed for an overall oreientation to the fields of exceptionality, to be the responsibility of the entire center staff.

Area II - Preparation in curriculum, methods, and guidance in relation to the larger program for the entire field of exceptional children, with provisions within the courses for specific application to the teaching of blind and visually handicapped.

Area III - The special skills requisite to the field of the blind and visually handicapped. These chould be taught as skills and not be incorporated in the methods courses. Earned credit for these skills should be recorded upon demonstrated mastery of them.

Professional Laboratory Experiences

The professional laboratory experiences of the student are one of the most important aspects of his preparation. These experiences include the observations the student makes early in his preparation--observations of normal children, observations of exceptional children, observations of individual children, observations of groups of children, observations of ildren at work and children at play.

The next step in the professional laboratory experiences is that of participation, in which the student has direct contact with children under the supervision of an experienced person. It may include reading to children, giving special help to a child with a reading difficulty, accompanying a group on a field trip, and so forth.

Near the end of the college experience, the student engages in perhaps the most worthwhile requirement of the teacher education program--student teaching--or in the five-year program, internship. For the student preparing to teach the visually handicapped, the student teaching experience includes working with seeing children, blind children, and partially seeing children. It may include experiences in both residential and day-school programs, experience in more than one type of day-school program, and experiences at both the elementary and secondary levels. The practices as to the amount of time vary considerably from one preparation center to another. It may be as little as a portion of one quarter of work to a full semester in the four-year program or a full year in a program of internship. It may take place in the campus laboratory school under the direction of a supervising teacher or in an off-campus situation under the direction of a cooperating teacher working with a supervisor from the college. The Encyclopedia of Educational Research (1960) lists these trends in student teaching:

1. Increased amount of time devoted to student teaching
2. Tendency to make it a full time experience
3. Introduction to laboratory experiences prior to student teaching
4. Increased use of off-campus locations

In this area, too, the problems are numerous. They are also closely related to the problems of other factors already considered in the preparation of teachers of the visually handicapped.

The factor of selection is of concern at this point. For the most part students are selected on the basis of academic record, prerequisite courses, and health. Some college have made progress by the addition of inventories of attitude and personality, a measure of interest in teaching, a recommendation by the major professor and a review committee.

The amount of time devoted to professional laboratory experiences poses a problem by the lack of consistency among colleges. Perhaps we need further standards or guidelines in this respect, but most of all we need to look at the individual student. We know that some are ready much earlier than others and some need additional experience when requirements have been completed. However, this has not been the factor operating in the differences in requirements among preparation centers. The problem of amount of time spent in student teaching is a major one for the student in the area of the visually handicapped. Again, we may be deluding ourselves that we are adequately preparing a teacher of seeing children when we cut short the experience with such children in order to provide the experience with visually handicapped children. Some progress has been made when the student has an experience equal in time to that of the major in general education plus the additional time with visually handicapped children. This problem is somewhat resolved when the student attends an additional summer session leaving more time for student teaching or by the five-year program of internship.

The problem of the kind of experience to give the student is one faced by most of us who prepare teachers. The many roles of the teacher have already been mentioned. Do we concentrate preparation in one role and hope for transfer of learning to the other roles, or do we give preparation in several roles, such as both day school and residential, both at the elementary and secondary levels? And how do we fit all of this into the time allotted by the college for student teaching? Again, progress can be made with greater individualization of experience to meet each student's need and with adequate time available for student teaching.

Another problem faced in planning professional laboratory experiences is that of place. These experiences should begin early which means that laboratory facilities for observation and praticipation must be available. The college may provide its own facilities, use those of the community, or a combination. As mentioned earlier, the trend in student teaching is toward off-campus experiences. The advantages of such a program are also enumerated in the Encyclopedia of Educational Research (1960) as follows:

1. Full time preferable to part time student teaching
2. Living in the community under conditions of regular teachers
3. Studying children for an extended time
4. Teaching various ages and subjects
5. Extra-class activities
6. Guidance

Providing teachers for the off-campus experience creates problems. Such cooperating teachers must meet qualifications of the college regarding number of years of teaching experience and degree held. The supply of teachers of the visually handicapped is small and is limited even further by these requirements. It is hoped that this would be an incentive for good teachers to pursue graduate work.

The practice of off-campus student teaching is progress in many ways. It affords the student opportunities for experiences with one group of children during his observation and participation on-campus and a different group for his student teaching off-campus. It affords him contact with greater numbers of professional persons. It can be considered progress in its affording the college supervisor greater contact with visually handicapped children and their teachers. This is so necessary. How can progress in the preparation of teachers be made if college facilities are unaware of the world of teaching and education for which students are being prepared? It is progress in that it affords the teacher in the field an awareness of and a part in the problems of the preparation of teachers.

The problem of coordination between course work and professional laboratory experiences needs much attention. Supervising teachers, cooperating teachers, and college staff must work as a unit to help the student make the shift from theory to practice. Progress is evident in the increased number of faculty-student seminars while student teaching is in progress or immediately following the experience.

Evaluation

Evaluation of the student following his preparation is still another problem. Again, we have tended to follow the pattern set by general education. We can justify this only when we have studied carefully and found that teachers of the visually handicapped should be evaluated by the same measures. We also need to study measures of evaluation to determine the most effective ones.

Follow-up

A final problem of our teacher preparation programs is that of follow-up of students. Planned and well-organized follow-up of students and opportunities for them to provide feedback are necessary for the evaluation of present programs, the awareness of problems and inadequacies, and the motivation for future success. Opportunities for feedback from administrators and supervisors should also be provided.

In a sense, the preparation of teacher of the visually handicapped is the responsibility of all of us. Each of you has a part in the future progress.

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PROMOTING MENTAL HEALTH IN TEACHERS

Matthew J. Trippe

In keeping with the topic of encouraging mental health among teachers and with the overall convention theme of "Inspection and Introspection of Special Education," what I really propose to do is to explore with you some trends and developments in mental health, education and in our work with children whose identities have been spoiled because of the interaction between culture and disability--both physical and psychological. The course I have charted involves a series of speculations concerning where we've been, where we are, and where we're going with the hope that through such exploration, we will better understand our condition and those better understand ourselves. No better way of encouraging mental health among teacher occurs to me than through improved self-understanding.

Since our real purpose is to ask what assistance can the field of mental health provide to teachers of children in acute danger of "growing up absurd," (to use Goodman's term), let us first look at the current scene. The attitudes toward mental health which exist in America today range all the way from pooh-poohing any and all contributions as subversive and unrealistic at one extreme, to the other extreme of viewing mental health as a panacea, a haven, and a solace--a special brand of magic for all our social ills. It is a paradox that often times both attitudes exist side by side as for example when the most hardheaded "realist" is the first to yell for the psychiatrist or to scream "he's sick" when things do not go to his liking. These extremes are real and can cause teachers to be torn apart as they search for meaningful ways to encounter children. Evidence for this may be seen in the ever present dialectic in education between those educators who insist solely on academic excellence and those who emphasize the personal-social development of children. In this era of intense competition with the Russians, the educational establishment is called upon for greater and greater outputs as the organized basis of society cause all of us--children and adults alike--to be less sure of ourselves and to know less and less about who we are and where we are going. With increased technology we are faced with the human dilemma of how to get the advantages of increased productivity to the people who are displaced by the very technology which increases our material wealth. The jobs that disappear in numbers are at the lower end of the occupational scale and those that are created require increased levels of skill and training. Gunnar Myrdal refers to this pool of displaced persons as an underclass and while their problems are political and economic, their resolution in large part lies in the realm of education and training.

We cannot escape the demands of employing every means at our disposal for improving the products of our educational system, but one wonders if this can be done without wholesale reforms in the means by which we move toward the purposes and goals of education. Thus, some people in curriculum are in complete agreement when it comes to adding vital new areas of study in our program of instruction but insist that this be in addition to and not in place of; that it nor replace any content that comes under the school's responsibility, whatever that may mean and however thay may be decided--if in fact it ever is except on the basis of custom and tradition.

This occurs in a culture and in a climate where social problems far outweigh intellectual problems at the same time that the truly intellectual is distrusted. It may be that our frenzy to extract greater and greater academic accomplishment by a process of intensifying the demands on pupils reflects our national distrust of truly educated people, people whose independence and creativity cause concern and alarm. Further, we have only recently discovered poverty in the land of plenty and with our time tested means of resolving social problems, have declared war on it.

Let's look at the other side of the coin however. Mental illness has been for some time now our number one health problem. Public health notions and assumptions of early detection and primary prevention would force added responsibilities on the schools for greater sensitivity to emotional problems and a more health producing atmosphere. If we are to make any serious inroads, the cooperation of the schools is vital since most all children between 6 and 16 experience school and we believe that the earlier a condition can be spotted and provided for, the greater the likelihood of effective modification or change.

At the Annual Meeting of the American Orthopsychiatric Association in this very city two weeks ago, it was proposed that we write off adult mental illness and concentrate on prevention among children as the only way to make a substantial change in the picture a generation from now. This could be achieved through the concentration of resources on children through services to families, schools, and communities. Yet earlier this year, Dr. Ronald C. Doll of Hunter College told the American Association of School Administrators that schools were driving children to heart attacks and nervous breakdowns. Parental anxiety and school anxiety conspire to create conditions which allow children no time to be children--no time to escape the hectic treadmill to oblivion which is the American success dream.

Who are we to look to--who to believe? This dilemma is brought home with accelerated force as teachers themselves continually struggle with their own role and function in working with disturbed children when confronted with the question of whether the teacher is there as a teacher or as a therapist. As educational approaches are found to be of immense value for disturbed children, this issue is, with some exceptions, becoming less obvious at the same time that it's more covert nature causes greater strain across the teaching profession. Unfortunately, mental health workers too often assume that they know all they need to know about education because of their experiences twenty to thirty years ago in the third grade. They assume that what helps a child learn to read, write, and figure is education and that any meaningfulness or structure that is associated with these activities is therapy.

Given this current state of confusion in educational circles which is for the most part only a manifestation of the general level of conflict and confusion that exists in our society generally, we can only achieve clarity of purpose in education by focusing on the problems in society. From one point of view, mental health may mean nothing more than basic human concern in a teacher-pupil encounter which is at heart a human encounter with a purpose. To free the teacher for this task, the first step may only be a better understanding of self which comes from enlightenment on what, in general terms, is the plight of every adult in America today. James Baldwin has suggested that we cannot discuss the state of our minorities until we first have some sense of what we are, who we are, what our goals are and what we take life to be. Most people never examine themselves in their terms and thus live automated lives of self-delusion. One reason that it is difficult for us to face ourselves is the disparity between what we actually are and what we desperately cling to as our images of ourselves. Baldwin suggested that the role of the Negro in America is to tell us where the bottom of the social status ladder is and, if the Negro were not there, "we might be forced to deal with ourselves and our own personalities with all those vices, all those conundrums, and all those mysteries with which we have invested the Negro race." Whatever we may think of people like Baldwin, Goodmen, and Golding to mention a few, they are teaching young people; they have something to say to them in a setting generally where the young have little confidence in adults. The world is changing so fast that our values and moral standards are inadequate for the task. Failing to find meaningful guidelines from adults, our young people struggle with a lack in themselves. What are our problems? What is it we fear? What is it that estranges us from the young we so dearly wish to provide for, to prepare, to promote to a greater level of productiveness and self-fulfillment?

Here the queries of Freud shine forth brilliantly as a beacon--not so much the Freud that is therapy--which in a sense may be and is used criminally as a social tranquilizer engineering consent and continually soaking up affect so that the individual can, with greater loss of self, adjust to the oppressive system--but the Freud that is theory--that illuminates the nature of man--that is at once his salvation and his doom. It has been said that therapists have been unable to deal with Freud's third and last formulation of his instinct theory, the conflict between life and death and it has fallen on historians and social philosophers to resurrect his notions and apply them to the human condition both as it is now and as it might be.

To better understand these ideas, a brief review of our continually changing Western social organization may be helpful. What began as an attempt to provide for physical security through control of the unpredictable sources of food, clothing, and shelter has been accompanied by a social organization which was not planned but which grew in the service of the need to control the physical environment. As social organization becomes more complex, more and more repressive patterns for controlling individual behavior are required to keep the organization functioning. Unfortunately, the more people adapt to the social environment, the more likely they are to lose whatever sense of personal reality they ever had. Standards of conduct become normative and the final criterion for understanding behavior is, in Reisman's term, "other-directed." This commitment to achieving material security and prosperity by the conquest of nature requires a high degree of efficiency in social and economic organizations. People must be properly arranged in the light of developments in science and technology through vast political, social and economic organizations. The organizations are intent on maximum efficiency and require that people be adaptable to the organization. As long as potentialities lie exclusively within the person, this pattern presents no great problem, but people are not isolated units. Individuals interact with their environments including other people. The nature of one's relationships with people and things influences thoughts and feelings and as society emphasizes efficiency in manipulation, people's relationships become more functional or utilitarian and less personal. The idea of community, the pattern of social relationships that give birth to our democracy and to which we can return only with great difficulty, if indeed, we can at all return, receives less and less emphasis as one is pushed to derive his sense of value solely from his usefulness. For many people, the world of work is becoming the totality of existence--a total claim on the whole of one's identity.

Walker and Fletcher (1955) have pointed out that this result is inevitable since it is based on the assumption that a richer personal life would grow out of material prosperity but they are quick to point out that the logic of utilitarian action cannot be applied to the personal sphere without destructive results. It is a process that began at the end of the Middle Ages and has been both unquestioned and self-perpetuating. Each new generation encourages the development of knowledge skills and attitudes that are necessary to maintain and support this trend so that we have become progressively more adept in applying utilitarian frames of through, feeling, and action and less aware of the irrationality in which we engage. This same point was stated by Marcuse: "The traditional borderlines between psychology on the one side and political and social philosophy on the other have been made obsolete by the condition of man in the present era: formerly autonomous and identifiable physical processes are being absorbed by the function of the individual in the state--by his public existence. Psychological problems, therefore, turn into political problems: private disorder reflects more directly than before the disorder of the whole, and the cure of personal disorder depends more directly than before on the cure of the general disorder."

Evidences of this trend are to be seen in the mental health field where the growing pattern appears to be disenchantment with individual or clinical approaches to helping people and a stress on total community approaches, social psychiatry, milieu therapy and community psychology. Even in individual treatment, ego psychology models which emphasize the interaction of the person with his environment are to some extent gaining in importance over the more traditional approaches which concentrate on unconscious factors. Social effectiveness is rapidly becoming a major criterion of personal mental health. Educational approaches to disturbed children are increasing in tempo, at least in part, because they concentrate on reality and are fortified by the observation that school is the work of children. To quote Walker and Fletcher, "We are encouraged by almost every educational influence from cradle to grave to equate personal worth with social acceptability, spiritual integrity with moral conformity, wisdom with intellectual brilliance, love with admiration and responsibility with power." Thus the values associated with the successful production of consumer goods have been transplanted to the human enterprise.

Education and schools have absorbed this ideology as much as other social institutions. School operational patterns to some extent are modeled in the pattern of production organizations and have adopted efficiency as a major goal. The wide use of intelligence tests which measure the rate of intellectual growth focuses on questions of how fast and how much as major concerns in efforts aimed at individualizing instruction. To some degree, we have only been successful in selecting children for special consideration from the top and the bottom of the distribution of intelligence, giving much the same to all who fall in between and watering this down for those who deviate in other ways.

Frazier has proposed that research in learning has provided us with new concepts with which to approach the problem of individualizing instruction and suggests that we need a new vocabulary with which to discuss individual differences. His main points are that learning is multidimensional, learning is limitless, and learning is personal. The implications of these ideas for education are yet to be fully realized in everyday practice. Yet, if some counter tendencies and insulation against the effects of over-organization, exploding population, huge housing projects, big business, big government, and large schools are to be introduced, education, it would appear, is an ideal place to intervene. Surely the process whereby a child is acculturated is not the same as the process whereby consumer goods are produced. If our goal is to develop in children the qualities of curiousity, wonder, adventure, enthusiasm, and joy, even in the face of danger and difficulty and if modern life requires greater and greater degrees of repression, the fact must be faced that repression leads not to these desired traits but to hatred, resentment, greed, boredom, and resignation. Current emphasis on creativity in educational circles, to some extent, may be seen as a reaction against pressures for conforming behavior in schools that arise from assemply line organization and an attempt to escape the influence of surplus repression. The source of repression may be seen in fear. Fear is aroused in the presence of power and results in a loss of personal responsibility. Even though one may adopt the will of the person feared, personal desire remains. For what remains, one feels guilty and adopts an attitude of self-hate. Pushed to its logical conclusion, what one hates is one's spontaneity and the will to freedom becomes the will to obey. Thus, "good" becomes what we are told to do and "bad" is what we want to do.

The issue then is not whether school should keep or if we should close up shop for half of each day and collectively conduct ourselves to the mental health center or child guidance clinic. Rather, the issue is clearly what goals do we wish to achieve. Do we in the democratic tradition wish to create circumstances which insure each and every child the opportunity to fully become what he might become or is our investment so much with the system that we are satisfied to accept the rejects for which the system is unable to provide? I submit that under the guise of the former, much of special education in the United States today is in the service of the latter. Does anyone today believe that in spite of our inability to clearly demonstrate any auperiority for special classes over regular classes for mentally retarded children, such classes are in danger of being abolished? Of course not. They exist as much or more so for different purposes. To look at these different purposes or goals is to face some issues which have been neglected for too long and represent a ray of hope on a horizon which has been too dark too long. At the heart of the problem is the discrepancy between our philosophical foundations and theory on the one hand and our actual practices on the other.

S.M. Miller talks about stupidity and power as two competing modes of explanation for things going wrong particularly in the field of education and social services. As more and more failures are uncovered, Miller points out that the professional stance is to argue that something went wrong or we didn't know enough and that the situation can be remedied by the application of new knowledge to offset the limitations of previous knowledge. Miller is concerned by this and suggests the power argument as a competing mode of explanation. He says, "Failure took place because professional, bureaucratic or economic political interest groups were not interested in success or had different definitions of success." It isn't so much that stupid things are done as much that groups in positions of power have goald which conflict with what appear to be rational, appropriate goals for social action.

Is it that we don't know enough and we need more information, more knowledge, more research, or doesn't it work because we don't want it to, or people in power have other goals, other objectives? If the issue then is power, what are we doing to affect the power situation in areas that are vital to us? For example, do we really not know how to plan and organize residential institutions for blind children any better than we do to achieve the purposes we set for them, recognizing that for some children, blind or not, residential facilities will always be needed--or do the people in power, those who have the most to lose financially and/or professionally, resist these changes or fight for change on another front? Are there changes that we want so badly that we are willing to risk ourselves to obtain them? I submit that if there are not, then we can have no mental health in teachers or anyone else--only self-delusion. What I hope to convey to you is that maybe the best way to find out who we are and where we are is not so much by looking at ourselves, but by action. Just as the man lost in the woods can never find his way back through contemplation under a shady tree, we cannot find ourselves without exploring the world about us and working for social change. What is out there is not beyond our control and exists only because we allow it to. . . . If we can recognize that power is at the heart of many of our pressing problems, then perhaps we shall be closer to achieving change than we might otherwise be.

In the field of civil rights, it has been observed that the real victims in the Deep South are the white southerners. There people are at the mercy of the southern oligarchy who exploit them for their own ends and purposes. This system is being broken by a commitment to social action through the NAACP, CORE, and the student movement. It is part of a development that is taking place both in society at large and in the mental health field.

One of the more challenging features of this movement is that our youth have seized the initiative. Only yesterday we were distressed by the values of our college students and we deplored their security manuvers and their lack of involvement with vital social issues. The organization man had invaded the college campus. Today, however, youth are moving out not only in voter registration, lunch counter integration, and on busses, but student volunteer groups are also working on back wards in mental hospitals and in poverty stricken parts of our country. Our young people have served with distinction in emerging countries with the Peace Corps. Plans are under way to establish a National Volunteer Corps within our own boundaries. Personal commitment is emerging as an untapped resource.

Mental health shows signs of departing from its prolonged concentration with the unconscious and is recognizing that it deals with personal, social, and ethical problems in living in a broad public health context. Hobbs has characterized this movement as the third revolution in mental health. Clemenceau said war is too important to be left to the generals, and these developments are based on an awareness now that mental health is too important to be left to the mental health disciplines. Partly as a result of the manpower crises, and partly as a result of the inability of traditional agencies to provide meaningful service for the many in need, we are now experimenting with housewives, teacher-moms, teachers, and volunteers. For too long we have been content to recommend highly specialized services where none exist and thus content ourselves with an illusion. We are now recognizing that this really means that most people in great need get no services at all. Dr. Spock has recently told about his marching in picket lines for integration and has challenged professional mental health workers to take a stand also. At a time when "The Deputy" asks where the Pope was during Hitler's atrocities, Dr. Spock poses the same question for mental health workers in relation to Negro civil liberty. Citing our reluctance to commit ourselves, Spock advocated the theme of "living for something outside the self" and said that "if more of us were willing to be bold, then boldness would become more respectable." The theme here and in Frankl's Logotherapy, for example, is that the true meaning of life is to be found in the world rather than within man or in his own psyche as though it were a closed system. People suffer as much or more from human problems as they do from neurotic symptoms. Man is a responsible creature and must realize the potential meaning of his life by doing.

If we can realize that self-realization depends on action--what we are willing to do--and if further, we can recognize that power is often the key to action, then the purpose of this discussion will in some small measure be achieved.

Such functioning requires--yes, screams for--school organizational patterns which defy the application of assembly line techniques to the education of children. Enlightened teachers must function in an open atmosphere which inspires innovation, invention, and a willingness to commit one's self. This can only be done when there is respect and full communication. School programs must be carefully articulated with efforts of other community health and welfare agencies. Work with children must be characterized by clarity, honesty, and attention to reality. Power should be developed so that the results of action are guaged by the relevance and importance to the goals we propose for the children we serve.

In special education it means attention to the common goals we have for all children and not excessive investment in the welfare of any one particular type or variety of exceptional child. Concern must be shown for all of our people and not just the particular group which evokes our sympathy and concern or provides a release for our guilt. We cannot deny the opportunity for freedom to any group without paying for this within ourselves.

MENTAL RETARDATION

SOME RESEARCH PROBLEMS IN PROGRAMED INSTRUCTION

R. J. Capobianco

The recent educational mania to resolve all and sundry problems in education through the use of programed instruction might be likened to the not-so-recent establishment of crash programs in science and mathematics which developed as a result of the generally held belief that we were behind the Russians. The nationwide furor which stimulated some radical changes in educational systems in order to produce more and better scientists and mathematicians, created new problems as well as solved many perennial mysteries. Developments in the area of programed instruction seem to parallel, thus far, the progress accomplished through new programs in science and math but the problems emerging in the area of programing appear to be somewhat disproportionately higher than those accompanying the science and math surge. Not everyone who enrolls in a tailor-made program is automatically a scientist or a mathematician but, apparently, the challenge of programing as an art is not as fearful to the uninitiated. Since there is no recognized curriculum or course of study intended to produce professional programers, seemingly, everyone who has ever taught, taken a class in educational psychology and/or can manipulate pencil and paper, feels competent to try his hand at programing. After all, the basic rudiments of programed instruction are quite simple: small steps, participation by the learner, immediate feedback, errorless learning, and self-pacing.

Unfortunately, it has become obvious that it is not so simple a matter to apply these principles to specific curricula areas or courses of study. The general consensus of the multitude of research studies and demonstrations in programed instruction show that non-significant differences between groups (programed instruction versus various modes of control) are the rule rather than the exception (Silberman, 1962). Currently available programed material has not demonstrated superior mastery for any groups of Ss, at any particular grade level, for any specified portion of the curriculum nor for any isolated course of study. The results reported, however, vary from study to study.

How is it that research findings can conflict to such a degree, even when the same independent variable is under consideration, as to disparage the application of a techniques which, by its very nature, should insure better and faster learning? The research itself and/or the type of program utilized may offer possible explanations.

Research Comparisons

It is not uncommon to find contradictory results reported by investigators studying the same idependent variable or series of variables. Identical independent variables, however, do not insure comparability of other research conditions. A perusal of programed instruction literature (excellent reviews are provided by Silberman, 1962, and Stolurow, 1963, among others) demonstrates the wide disparity in technique and criterion measures. Among others, some of the more common differences between investigations are as follows:

1) Criteria for selection of Ss and tasks
2) Time intervals for pre-training, tasks, and between tasks
3) Task complexity
4) Wide individual differences and mixed drive levels
5) Conditions of administration
6) Response mode, method of feedback, and/or schedule of reinforcement
7) Extent of practice, review, and/or additional information
8) Basal and ceiling effects of criterion measures
9) Evaluative procedure

Disparity between investigations on any of these variables, or combinations of them, might easily explain the differential results and conclusions drawn from these studies. In addition to non-comparability in research techniques used, the method of programing may also have differed between investigations.

Program Comparisons

It has been stated earlier that the minimum requirements for the construction of programed material appear to involve limited effort and little in the way of technical know-how. But the products which appear to meet these criteria often fail miserably when put to practical use. Analyses of these failures demonstrate the loopholes in programs thought to be adequate.

How small is a small step? Several factors are pertinent here. Either the steps are so small as to generate boredom and literally insult the intelligence (be it what it may) of the learner or they may be too gross--including all necessary information but not excluding that which is not necessary. Various attempts toward simplicity of programing allow for correctness of responses without concomittant meaningfulness; whereas, the complexity of a given frame in the program may cause the S to lose interest after making several errors in a row.

Active participation by the S in programed instruction is another requisite to learning. Again several alternatives present themselves, each with its own inherent weakness. Much has been said concerning the pros and cons of various response modes. Assuming that the investigator is familiar with the functioning ability of his Ss, he would select a response mode which is in keeping with the material presented; that is, he would not expect write-in responses from non-readers nor push button responses from a spastic S. However, it remains a moot question as to whether or not it is advantageous to minimize or eliminate errors and this is, in part, related to the number of alternatives presented for S's consideration.

Although some investigators feel that the minimum number of response alternatives (2) insure the greatest amount of learning since there is a reduction in the probability of error, so too, other researchers present evidence to the contrary. Minimum choice response modes also permit a higher proportion of chance success; for the two-choice alternatives, 50% success. Definitive data on this problem have yet to be offered in the literature. Further difficulty is encountered with active participation on the part of specific Ss. Those with limited intelligence (particularly the mentally retarded), or even slight emotional upsets which interfere with attention span, demonstrate an inability to follow even the simplest instructions. Constructing programs with a multiplicity of response modes further complicates the adherence to instructions. It is suggested that one particular response mode for the mentally or emotionally handicapped, such as multiple-choice, be employed throughout their exposure to programed instruction.

Perhaps one of the most basic or prerequisites for programed instruction is the provision for immediate confirmation or feedback. Providing immediate knowledge of results serves as reinforcement to the learner after his response. In fact, knowledge or results has been demonstrated, by some researchers, to facilitate learning as adequately as candy rewards or other such tangible reinforcement (Capobianco and East, 1964; Ellis, 1962; Forgays and Levin, 1959, 1960; and Stevenson and Zigler, 1958); but the optimum schedule of this type of feedback for improved learning and retention has not yet been isolated.

Using verbal reinforcement, Kapos, Mech, and Fox (1955, 1957) reported that 75% FR was significantly more fruitful than random or continuous reinforcement in facilitating learning. Siegel (1956), on the other hand, found no specific condition of reinforcement superior. There is some indication that less than 100% FR schedules facilitate greater learning and retention in mentally retarded Ss than in normals (Spradlin, 1963; Stevenson and Zigler, 1958). The contradictory results cited by Kapos, Mech, and Fox and Siegel may be explained by the differential content of the programs and the unique qualities of the Ss used.

At a recent (1963) special lecture series on programed instruction held at Teachers College, Columbia University. Goldstein, of the Center for Programmed Instruction, summarized the findings of some unpublished research and concluded that there were no differences exhibited in learning using varying schedules of reinforcement including 0% reinforcement. Krumholtz and Weisman (1962) and Capobianco and East (unpublished) confirmed part of this conclusion in their investigations. Neither, however, included the 0% schedule of reinforcement.

Unpublished results on verbal learning in mental retardates obtained by Ellson, Engle, and Barber (1963) show an inverse relationship between number of words learned and percentage of reinforcement. Using varying percentages of reinforcement, from 5% to 95%, the mean number of words learned by their Ss was higher for groups with lower percentage of reinforcement. Their results, almost a complete reversal of expectation, warrant careful consideration.

Antagonistic results such as these may be strongly affected by the nature of the task itself and the method of programing, even with the assumption that the basic principles of programed instruction have been followed.

The criterion of errorless learning is often considered as one of the requisites for good programing. However, many of the researchers delving into various schedules of reinforcement utilized a variable feedback technique whereby the S did not have knowledge of results. It is difficult to imagine a multiple-choice program which insures errorless learning when the S is not aware of the correctness or incorrectness of his response. The wide disparity in results obtained by investigators using variable reinforcement questions the assumption that errorless learning is a necessity in programed instruction. Certainly in an attempt to achieve 100% success the program may be inherently boring because of its undue simplicity and lack of challenge.

The final criterion for programed instruction is that the material presented should be manipulated by the S; e.g., self pacing. But do programs really individualize instruction by following this principle? The S is still forced to pass through a single instructional path which was paved by the programer. The attempt to sequence the program in accordance with the programer's notion of adequate steps oftentimes ignores the fact that many Ss treat each frame as a separate problem unrelated to that which has been previously learned. In addition, the product which propses to achieve a single goal frequently is no less dull than the typical textbook.

Future Considerations

Adopting the role of devil's advocate does not imply lack of faith in the utility of programed instruction. At this stage of development, educational psychologists working in close conjunction with programers have not even begun to scratch the surface of the almost innumerable methodological problems associated with constructing programs and adapting reinforcement contingencies according to psycho-educational principles that will make them optimally congruent with learning abilities and disabilities of specific groups of students.

Using the Johnstone Training and Research Center's recently completed investigation on prgramed instruction via teaching machines (Blackman, Capobianco, East, and Hoats, 1964) as an example, it may be seen that the conclusions drawn from many investigations are dependent upon the frame of reference of the interpreter. Limited to the data collected in the example investigation, it is obvious that the gain in achievement demonstrated by the programed instruction groups are by no means spectacular, nor were they significantly different than the similar improvement shown by the control groups. Behaviorally, however, Ss exposed to programed instruction were characterized by dramatic improvement for both in- and out-of-school measures whereas the control classes did not improve.

As with other investigations, mitigating circumstances underlying this research give rise to other contingencies which may alter certain conclusions drawn from a purely objective inference resulting from the data collected. Limited time and the nature of the programs presented a ceiling effect which prevented demonstrable achievement gains by many students participating in this project. The lack of experimentally tested programing may have diminished the potential of some students in the achievement areas. Technical difficulties inherent in the auto-instructional devices themselves operated to decrease the amount of machine exposure time for the experimental Ss. Even more blatantly evident in a series of circumstances is the makeup of the samples selected for this investigation when compared to traditional "educable mentally retarded" samples drawn by other researchers for similar purposes. Most of these Ss were generally younger and characteristic of lower IQ levels than the typical educable population and the remainder of the groups were experientially composed of Ss who had been exposed to a greater than average history of prior educational failure. Singly or in combination these factors may have exerted a strong negative influence upon the results of this investigation.

Perhaps the inference drawn from research such as this may be that the results are inconclusive rather than pointedly negative. Considerable research remains to be done before the feasibility of programed instruction may be adequately assessed. Perhaps branching for some groups may nullify the deadly effects of a boring linear program but further basic information is still lacking on program method.

The next step in programed instruction research should be to establish and analyze, critically, a series of practical, pedagological variables affecting the learning and subsequent retention of Ss exposed to automated teaching. Among the most pertinent of these variables are (1) schedules of reinforcement, (2) multiple-choice treatment and patterning of programs, and (3) prompting versus confirmation techniques.

In order, research into these variables should include 100%, 67%, 33%, and 0% fixed ration schedules of reinforcement; programs to be constructed to identical criteria: number of prompts, repetition, fading and test frames. Immediate posttests and various retention measures should meet the saem criteria and presented proportionately, to assess the relative effects of two, three, and four choice response modes with subsequent posttests and retention measures. Overlapping programs would measure the effects of additional review assuming the identical criteria for programing are met.

Much has been said of the relative merits and deficiences of prompting and confirmation techniques in programing; yet, investigation into visual versus audio-visual programs may offer new evidence regarding the most productive approach for specific auto-instructional devices.

Pure research in the behavioral sciences may yet be an unrealized fantasy but better programing and tighter research controls are within the competencies of present-day invesitgators. Until these requisites are met in future research, no evaluation of programed instruction can demonstrate its practical worth to the field of education--especially for exceptional children.

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PROGRAMED TESTING IN THE RETARDATE TESTING PROGRAM

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Goldbeck (1960; as cited in Smith and Moore, 1962a) presented evidence that an instructional program that elicits a low error rate does not necessarily give rise to optimum achievement on a criterion measure. This led Smith and Moore to suggest that "more attention be given to the performance on the criterion measures as a means of evaluating programmed material than to the error rates for a program." Smith and Moore concluded that learning might be most efficient with programs that elicited an appreciable number of erroneous responses.

When different groups drawn from the same population are given different programs, variation between groups in mean error rate may not be correlated with the groups' mean criterion scores because differences in program difficulty may obscure differences in individual ability to learn a program without erros. Nonetheless, within a group of persons who have all had the same program, individual differences in error rate may correlate with individual differences in criterion scores.

This latter correlation may be expected only if error rate is reasonably high. When error rate is low, there is little room for individual differences. There is therefore little chance for error rate variation to correspond with variation in some other measure of performance. For example, if each S makes either 0 errors or 1 error, then the maximum possible point-biserial correlation with a rectangularly distributed set of criterion scores is not 1.000; it is .866.

If, as seems possible, a high error rate does not necessarily interfere with efficiency in learning, then it is conceivable that programs could be written that achieved their instructional goals very efficiently and also provided error scores that could be used the way that test scores are commonly used: to appraise students' performances.

The comments in the three preceding paragraphs are supported by recent findings. Smith and Moore (1962b) reported a significant correlation between posttest scores and numbers of errors in a sixth-grade spelling program. They concluded: "This provides some support for those investigators who have expressed the belief that special criterion measures are unnecessary for assessing a student's achievement after he completes a course which has been programed. This view assumes that the magnitude of the error rate is all that must be considered."

Stolurow and Beberman (1963, p. III-16) found a significant correlation of -.21 between numbers of errors made in a high school mathematics program and scores on a posttest based on the program content. They found a comparable correlation, -.24, when they added the numbers of items omitted to the numbers of errors.

Stolurow and Beberman (1963, p. III-17) also partialed out each S's IQ, as estimated by the Test of General Apititude (TOGA), and computed adjusted correlation coefficients. The adjusted correlation between the posttest scores and the numbers of errors plus numbers of omits was still significant (-.22); the adjusted correlation between posttest scores and numbers of errors missed significance by a narrow margin.

Using an automated audio-visual instructional device to teach Mandarin Chinese, Carroll (1963) reported: "Measures of performance during learning show moderate relationships with schores on the test of amount learned after Lesson I and II. . . . The highest correlation with /criterion test scores/ are to be found in the case of the error rate (errors per trial) in the Learning mode. For example, /the score on a criterion test of comprehension/ has a correlation of -.57 with error rate in the Learning mode." (Carroll, 1963, p. 44) However, Carroll permitted his 15 Ss to repeat each portion of the program as often as they wished; therefore, error rate may be confounded with motivation.

Frase, Stolurow, and Suh (1964), using a logic program, found relationships similar to those reported by Carroll. They divided posttest items into two categories: knowledge items and application items. Knowledge-item scores correlated from -.31 to -.40 with numbers of program errors. The correlations involving application items ranged from -.37 to -.47. "For the total post-test score, the correlation with the number of errors made in the program was, for Books I, II, and III respectively; -.50, -.48, and -.41." The authors pointed out that these correlations were not only statistically significant but also practically significant. They also found that numbers of errors correlated significantly with scores in a retention test; the correlations ranged from -.30 to -.47.

Problem

The S populations in the present study consisted of educable adolescent mental retardates residing in a state training institution. Blackman, Capobianco, East, and Hoats (1964) found that for this population programed instruction not only taught subject-matter content and transmitted specific items of information as well as traditional teaching methods, but also improved the classroom behavior of the students and seemed to inculcate better general habits of attention and application. Consequently, it seemed that it would be particularly welcome if it could be shown that in a mental retardate group programed instruction served both instructional and testing goals.

In this study, adolescent educable mental retardates were given programed instruction in phonics. The instructional device and programed material resembled Carroll's (1963). However, more Ss were used and repetition of portions of the program was not permitted. The Ss were also given the Wide Range Achievement Test (WRAT), a criterion test of reading achievement routinely used at the institution to evaluate students' progress. Error measures on two phonics programs and achievement scores on two administrations of the WRAT were inter-correlated to determine the extent to which programed instruction error measures could serve as predictors of the criterion. This use of programed instruction as a testing device is termed "programed testing."

Method

Subjects. The 47 Ss selected for this study were all the retardates at the Johnstone Training and Research Center, a state residential school for educable retardates, who met the following criteria: (a) they were enrolled in the full-day school program; (b) they had obtained a reading score of grade level or less on the WRAT (WRAT 1) administered in June, 1963; and (c) they had not had experience with similar teaching-machine programs in a study of the educational value of teaching machines (Blackman et al., 1964) recently completed at the institution. The Ss' ages ranged from 11 years 11 months to 16 years 5 months, with a mean of 14 years 5 months; their IQs ranged from 45 to 90, with a mean of 63. Although most of the Ss had had previous experience with teaching machines, they were not familiar with the kinds of programs used in this study.

Apparatus. The apparatus consisted of a self-paced, fully automatic teaching machine designed and constructed for a previous project (Blackman et al., 1964). A 35 mm. filmstrip projector within the device presented visual stimuli on a 6 3/4-inch-square glass screen. An internal tape recorder was synchronized with the projector so that instructions and audio stimuli could be presented simultaneously with the visual stimuli. Four response buttons were arranged vertically to the right of the screen to correspond with the four choices in each frame. Above the screen were two small screens. A green light appeared in the left one of these if the correct response was made; a red light appeared in the other if an incorrect choice was made. The duration of these reinforcement lights was two seconds. The film strip advanced following a correct response but remained stationary after an incorrect one in order to allow the S to keep responding until he made the correct response.

Programs. Extensive preliminary work was done to find programs that would provide a wide range of difficulty for the Ss. Two phonics programs were finally selected. Each program uses 22 frames to teach the long sound of a particular vowel and 22 frames to teach the short sound of the same vowel: ō and ŏ were taught in program P46 and ū and u in program P47. A description of the "o" program (P46) follows:

1. Frames 1 and 2 present four words on the left of the screen and one of these words, by itself, on the right next to one of the response buttons. All of the words on the screen have the sound of ō in them. The taped instructions point out the similarity of the sound of ō in each of the words, call attention to the one word on the right (which is named), and ask the S to press the button next to that word.

2. The next eight frames present four words, each next to a button. In each frame, one of the words has the sound of ō in it; the other words are foils. All four words are identified by the tape and the S is asked to press the button next to the word that has the sound of ō in it. Each frame contains new words for both the correct response and the foils. The position of each word in each frame was randomized.

3. The next four frames present pictures, rather than words, next to each of the buttons. (In program P46, frame 11 was defective: the picture of the correct alternative was missing. Consequently, this frame was not counted in Ss' scores.) On each frame, one of the pictures has the sound of ō in its name. The tape gives the name of each picture and asks the S to press the button next to the picture with ō in its name. Again, the positions of the pictures and the positions of the correct responses were randomized.

4. Each of the last eight frames of the first half of the program presents one word next to each of the four buttons, but the words are not spoken in the taped instructions. The S is asked to read the words to himself and to press the button next to the word with the sound of ō in it. Seven of these test frames include a foil word with the sound of o in it.

The next 22 frames follow the same sequence to teach the short ŏ sound.

P47, the "u" program, is constructed in the same fashion as the "o" program.

Procedure. Each S was called to a testing room individually and given the following instructions by one of the three examiners:

"Have you ever sat in front of one of these machines before?"

If "Yes": "Good, then you will remember that you are to look at the screen in front of you and listen to the voice of the teacher through these earphones. She will tell you what to do."

If "No": "Well, you are to look at the screen in front of you and listen to the voice of the teacher through these earphones. She will tell you what to do."

The instructions given by the examiner continued:

"You will see some words on the screen. Notice that there are four buttons here (examiner points). The words on the screen will be next to the buttons. When the teacher tells you to push a button, push the button that you think is the correct one. If you push the correct button, a green light will come on here (examiner points). If you push the wrong button, a red light will come on her (examiner points). When the red light goes off, you may push another button until you get a green light. After the green light goes off, the film will move, and you are to keep watching and listening to the teacher. She will tell you what to do next.

"Do you have any questions?" If the S had any questions, the examiner answered them by rereading or paraphrasing relevant material in the preceding instructions. The S was then given program P46.

At the end of the program, the S was told:

"You have done well and you have earned a prize. I will want you to work at the machine again this afternoon/tomorrow. After you have finished next time, I will give you the prize you earned now and another one for next time." The S was then allowed to examine the prizes in the testing room, which included packets of baseball and football cards, jigsaw puzzles, model airplanes, harmonicas, games, fans, a variety of rings, and cigarettes (two per prize). Finally, the S was given another appointment either for the same afternoon (if he had been tested in the morning) or for the next morning (if he had been tested in the afternoon).

At the beginning of the second session, the S was administered the reading section of the WRAT (WRAT 2). He was then instructed:

"You will do the same thing at the machine that you did last time, but the words you will see are different. Do you have any questions?"

The S was then given P47. Following completion of this program, the S was allowed to select his two prizes. The total time spent by each S in the two experimental sessions was approximately 50 minutes. This time varied slightly from S to S, according to the number of errors made in the program.

Results

Two error measures were used for instructional program performance: (a) the total number of errors made on a program (error score), and (b) the number of frames with errors in them (error-frame score). Table 1 presents some intercorrelations among these and other measures. The correlation between WRAT 2 scores and the sums of the error scores for the two programs was -.565; the correlation between WRAT 2 scores and the sums of the error-frame scores for the two programs was -.610.

The correlation between WRAT 1 and WRAT 2 (given nine months apart) was .963; the correlation between the two instructional programs; error scores was .682; the correlation between the two instructional programs' error-frame scores was .699; the correlation between the sums of the error scores for the two programs and the sums of the corresponding error-frame scores was .975.

MA correlated .206 with WRAT 2 scores and -.557 with the sums of the error-frame scores. Partialing out MA did not produce any noteworthy changes in the correlations between error-frame scores and WRAT scores.

Discussion

In the present study, the correlations between error measures and achievement test scores were consistent with, but somewhat higher than, those reported in previous studies (Carroll, 1963; Frase, Stolurow, & Suh, 1964; Stolurow & Beberman, 1963). This result may be attributed to the fact that the instructional programs were selected because they elicited a wide range of error measures from different Ss; with substantial inter-S variability, there was relatively high correlation despite the use of comparatively short instructional programs.

When an achievement test is used to predict criterion performance, a compromise must be found between the wish to increase the reliability of predictor test by lengthening it and the wish to reduce the time the predictor test takes away from teaching. This conflict between testing goals and instructional goals should be less poignant when the predictor is also an instructional program.

Table 1

Correlations among Measures

(since N = 47, individual correlations with absolute

values > .288 are significant at the .05 level)

Measure	Measure										
	MA	CA	IQ	46E	47E	TE	46F	47F	TF	W1	W2
MA		.245	.871			-.570			-.557	.168	.206
CA			-.253							.464	.406
IQ						-.388				-.059	.008
Program 46 errors (46E)					.482					-.499	-.512
Program 47 errors (47E)										-.529	-.525
Total errors (TE)									.975		-.565
Program 46 error frames (46F)								.699			
Program 47 error frames (47F)											
Total error frames (TF)											-.610
WRAT 1 reading score (W1)											.963
WRAT 2 reading score (W2)											

Since the correlations obtained in the present study were obtained with relatively short instructional programs, they may involve less reliable predictor scores than would have been the case had the instructional programs been longer. Consequently, somewhat larger correlations between instructional-program error rates and criterion scores may be expected in practical applications, in which error scores may be based on many hours of programed instruction. For such cases, the test-length parameter in the familiar reliability formulas might well be considered infinite. The strength of the relationship between criterion scores and program-error scores could then be regarded as reflecting the validity of the program-error scores; the question of the reliability of the program-error scores would be of much less concern than the question of the reliability of an ordinary predictor test's scores. Practical instructional programs involve so many items (frames) that even programs with highly unreliable error measures for single items may be expected to provide relatively stable measures based on totals for all items.

A criterion test is often an onerous task for retardates; it remains to be seen whether programed instruction with a relatively high error rate is as burdensome. It would seem that such instruction would be relatively pleasant, since the Ss in the present study appeared to find the task to their liking. Further, since a test, as opposed to an instructional program, does not provide immediate knowledge of results, a test does not seem to be the most efficient way to teach retardates correct responses; it may even serve as a fixative for incorrect ones.

When a test of retardate performance is an objective test rather than an essay or free-response test, the traditional distinction between testing and instruction may be questioned (see, for example, Pressey, 1960). Pressey (1950) showed how a standard objective test is converted into an instructional program when students are given the answers to each test item as soon as they make their responses. It may be objected that such a "program" would not present items in a graded order; however, Jacobs and Kulkarni (1963) found that moderate scrambling of the traditional graded order of items in an instructional program did not make the program any less effective. Conversely, an instructional program is converted into a test when knowledge of results is deleted. Jacobs and Kulkarni (1963) also demonstrated that such deletion did not detract from the instructional value of the program.

The practical implications of the present study are twofold. First, it implies that instructional programs for retardates may be used in place of traditional tests when there are appreciable individual differences in the program error rates. Second, it implies that tests may be educational when they are also instructional programs. Since the study has both implications, it should certainly not be used to justify abandoning either traditional tests or instructional programs. Instead, its ultimate practical implication is that both tests and instructional programs should be scrutinized to see if they can be adapted to the two-way function that seems attainable in many instances.

Even here, however, a note of caution is appropriate: there will surely be many circumstances in which the testing goal or the instructional goal is paramount, in which case it would be wasteful to tamper with an instrument in order to seek to accomplish that which was not even desired. Moreover, there will certainly be many instances in which attaining one goal will, infact, interfere with attaining the other. A task for future research would seem to delineate those circumstances under which a twofold training-testing instrument would be feasible. Such research would provide an empirical basis for the traditional distinction between testing and teaching. Thus, finally, this study points toward a way of making the testing-teaching dichotomy a question of empirical fact rather than one of definition: For a given subject matter and type of student, the distinction between testing and teaching would depend on the extent to which both could not be done concurrently by a single instrument without mutual interference.

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IMPLICATIONS OF AN UNSUCCESSFUL ATTEMPT OF LANGUAGE THERAPY WITH SEVERE RETARDATES

Robert T. Fulton

An extremely limited amount of work has been done with language development of the severely retarded. It is conceded by this experimenter that language development in terms of quantitive and qualitative degrees is reasonably improbable; however, is it not conceivable that minimal communicative skills can be attained? These skills would allow the retardate to communicate his basic needs and necessities, such as bed, bathroom, water, hand, foods, etc.

It was the purpose of this study to determine by which of three therapeutic approaches, motokinesthetics, auditory stimulus, and the Mower principle, severely retarded children with little or no speech could best achieve these minimal skills.

Subjects:

Area nurses and attendant supervisors were asked to refer names of children between the ages of 6 and 14, functioning as severely retarded, and who displayed little or no speech. A team of speech therapists screened and ranked the 37 referrals for suitability to the project. Ranking included such factors as self-mutilation, hyperactivity, and hypersedation. Eighteen subjects were selected to be included in the project.

Of the 18 subjects used in this experiment, mental ages were determined on 15 via the Vineland Social Maturity Scale, one by means of the Cattell Infant Intelligence Scale, and one via psychiatric evaluation. No results were available on one subject, other than a "severe" subjective evaluation. Mental ages ranged from 7 months to 3 years-3 months, with a mean MA of 1 year-7months. The chronological age of all subjects ranged from 7 years-6 months to -3 years-9 months.

The medical diagnosis for the 18 subjects were as follows:

5 congenital cerebral defect, no further specified
4 Mongoloid
3 Unspecified
3 Encephalopathy
  1 associated with prematurity
  1 post-natal cerebral infection
  1 mechanical injury at birth
1 Microcephalic
1 Neo-natal
1 Spastic cerebral palsy

The experimental group was composed of ten females and eight males, of which 16 were Caucasian and two Negroid.

Procedure:

Testing:

Each subject's vocal and gestural responses were determined pre and post therapeutically by three methods: (a) an objective test battery, (b) a subjective report by the respective therapist, and (c) a subjective report by the cottage attendant most closely associated with the subject. Each of the three measurements were conducted independently and without knowledge of results obtained by the other instruments.

The objective test was based, in part on the principle subtests within the Parsons Language Sample, i.e., tact, echoic, intraverbal, echoic gesture, comprehension, and intraverbal-gesture. The test was not developed for standardization purposes but to function as a pre and post therapeutic evaluation of the subject's receptive and expressive abilities relative to environmental influences.

The test was divided into ten subtests, of which some were multi-purpose in their structure. The test was structured as follows:

I. Comprehension-verbal: (what's your name and where do you live?)

II. Receptive and expressive intraverbal and gestural: (commands to follow the examiner, "Take off your coat" and "Sit down"). Presented with and without accompanying gestures.

(Subtests III, IV, and V were preceded by a short sample training session to acquaint the subject with the test procedures.)

III. Tact and echoic: consisted of 13 familiar items (eating utensils, food, clothing, etc.) The S was asked "What is this?" and then stimulated, "Say ______."

IV. Tact and echoic: the same procedure as Subtest III was followed except the four test items were familiar miniatures.

V. Tact and echoic: the same procedure as Subtest III and IV was followed except the nine test items were pictures (clothing and people).

VI. Comprehension and gestural: the subject was requested to "Show me your ______. (Four parts of the body were used.)

VII. Comprehension and gestural: the subject was requested to "Point to her _______." (Parts of the body as represented by a large drawing were used.)

VIII. Action concept and intraverbal-echoic: each of eight action words were tested in the following manner:

a. Examiner demonstrated and asked "What am I doing?"
b. A picture depicting the action was asked, "What is he/she doing?"
c. Echoic -- stimulated, "Say _________."

IX. Concept-echoic: eight items using name, numbers, and yes-no concepts were used. The Subject was requested to repeat, "Say two."

X. Comprehension-intraverbal: (four items) the subject was asked if he had any brothers or sisters and what were their names.

The therapists's subjective reports were based on their experience and other random test tools; however, the results were not to be obtained by any formalized testing procedure.

The attendant's subjective report consisted of five generalized questions relative to the subject's verbal behavior. The questions were structured to minimize differential interpretation. The reports were presented to an assemblage of the attendants with the statement that they must interpret the question without additional definition to minimize outside interpretation and influence.

All subjects were evaluated audiometrically, via standard puretone or sound field procedures, and found to have normal hearing or insignificant losses for training purposes. In no case did a suspected loss exceed a mild level (35 db).

Therapy Approaches:

Three therapeutic approaches were used based on the principles of motokinesthetics, the auditory stimulus method, and the Mower Theory. All three approaches were to stress the acquisition of a basic vocabulary rather than corrective articulation.

The motokinesthetic approach was based on the manual manipulation of articulators with support of auditory and visual stimuli.

The auditory stimulus method was primarily based on auditory and visual stimulation and verbal drill. This approach could be implemented with phonetic placement as long as finger-face manipulations associated with the formal motokinesthetic approach were not used.

The Mower principles adapted an atmosphere and approach similar to that of the auditory stimulus method, but less formalized. Subjects were rewarded with a conditioning agent, candy, immediately preceding the presented auditory-visual stimulus, or the reward-stimulus principle.

Therapy sessions were not programed in a standardized pattern, allowing for individual subject differences; however, therapists were provided with a recommended vocabulary and receptive sequence based on necessity and environmental influence. This sequence was divided into ten major areas:

1. S's name, cottage, yes, no
2. Commands: point to, show me, stand, sit, come
3. Parts of the body
4. Clothes
5. Eating utensils and food
6. Furniture
7. Action words
8. Misc: door, window, bathroom, car
9. Numbers
10. People and person concepts

Subjects were randomly assigned allowing each of three therapists to be assigned two subjects for each of the three therapeutic approaches, or six subjects per therapist.

Individual therapy sessions were administered for 20 minute intervals, three times per week, for a period of 18 weeks. Absenteeisms were balanced with additional sessions; thus, approximating equivalent total therapy time for all subjects.

Results:

Observation of the pre and post therapeutic objective test results indicated no noticeably improved speech for statistical analysis via any of the three therapeutic approaches. It was, therefore, concluded that the purpose of the project, i.e., to determine which of three therapeutic approaches was best adapted to the acquisition of a minimal basic vocabulary with the severely retarded, was unsuccessful.

Unwilling to accept a conclusion that severely retarded children are unable to benefit from speech and/or language therapy, this experimenter attempted to determine if any factors appeared significant.

Test Results:

A review of the Attendant's Reports indicated no significant changes pre and post therapeutically as indicated by the questions as stated.

A review of the Therapist's Subjective Reports indicated that some Ss had shown improvement, particularly in their receptive language skills. Indicated improvement (I)/non-improvement (NI) relative to their respective therapist is shown in Figure 1. Observation of Fig. 1 indicates subject frequencies well within the limits of equal proportions.

Inasmuch as Fig. 1 did not indicate a skewed distribution in the direction of No Improvement, the pre and post therapeutic objective test was re-examined for any slight, or normally insignificant, differences.

Slight pre and post differences were found in nine cases with a possible difference in a tenth case. The comparison of these differences relative to the Therapist's Subjective Reports are indicated in Figure 2.

The frequency distribution in Fig. 2 represents what appears to be a correlation between the two methods of measurement. The application of McNemar's exact probability test, with a P of .002, indicates a significant difference from that expected in a normal distribution of proportions. The probability was figured based on the assumption that cell 'b' contained a positive-negative response even though it might well be considered a positive-positive response. (For further discussions, it will be considered a positive-positive response.)

Figure 3 indicates the basis for pre and post therapeutic differences via the objective test. Note that no subjects indicated an improvement in intelligible speech, thus, the initial unsuccessful evaluation; however, 100 percent of the 'improved' subjects indicated improvement in their receptive language and appropriate motor skills.

Results of Therapeutic Treatment:

This experimenter attempted to determine what, if any, factors could be attributed to the Improvement/Non Improvement distribution. A comparison between the improvement distribution and the therapeutic approach is indicated in Figure 4. This comparison appears to indicate no differences from that expected in a normal distribution.

Subject absenteeism from therapeutic sessions were compensated for through 'make-up' sessions. However, attempting to determine if the element of absenteeism was a determining improvement factor, the average frequencies of absenteeism was computed for two 30 day spot checks (complete absenteeism reports had been destroyed) and are indicated in Figure 5. There appears to be no great difference between averages, with the Improved Group indicating the slightly higher average of absenteeism.

Results of Physiological, Biological and Psychological Factors:

A subject frequency comparison between improvement and the sex of subjects is indicated in Figure 6. Although the frequency of cell 'c' (Female/Improvement) appears sufficiently larger than that of cell 'd' (Female/Non-Improvement), a probability of .186, via McNemar's exact probability test, indicates that the differences between cells are insignificant, and the differences are undoubtedly due to change.

No significant differences were noted in the frequency distribution between improvement and race, as indicated in Figure 7 by a P of .340.

At first glance of Figure 8, it appeared that subjects not receiving pharmaceutical sedatives might show a significant difference; however, McNemar's exact probability test revealed a P of .352. Thus, differences are undoubtedly attributable to chance.

Figure 9 indicates the frequency of subject improvement relative to the clinical diagnosis. Although all Mongoloid subjects indicated improvement and none of the subjects diagnosed as encephalaphathic, microcephalic, or cerebral palsied indicated improvement, it would appear unwise to apply any significance because of the small N's.

Comparative mental ages are indicated in Figure 10. Although the mean and median ages for the Improvement Group are slightly higher, the differences appear insufficiently different to attribute any degree of significance.

Conclusions and Discussion

The study as designed was concluded as unsuccessful in that intelligible speech was not attained by the subjects. Attempts to relate associated improvement to therapist, therapeutic approach, absenteeism, sex, race, pharmaceutical sedation, clinical diagnosis, and mental age indicated no significant difference.

Goldstein (1, 2), evaluating the progress of trainable children, with IQ's ranging as low as 17, concluded that children with IQ's below 25 did not profit from training. Kolstoe (3) attempting language training of low functioning Mongoloid children, ranging in IQ from -7 to 36, found that some children made slight gains; however, the results as a whole, tended to confirm Goldstein's findings.

Clinical observations by the Fort Wayne State School Speech and Hearing Department personnel and cottage attendants, however, indicated that several of the subjects had received sufficient benefit from the program to warrant program continuation.

Recommended continuation was based on such intangible improvements as: (1) improved interpersonal relations with adults and other children within their cottage division, (2) improved responses to discipline, (3) increased self worth, and (4) increased exploration of self and environment. These factors might well constitute those elements Schiefelbusch describes as "behavioral changes" when he describes the relative benefits treatment and training programs provide "backward" children.

Current instrumentation such as the Vineland Social Maturity Scale, Illinois Test of Psycholinguistic Abilities, or the Parsons Language Sample, although dedicated in part to pre-verbal skills, cannot sufficiently identify and discriminate between behavioral changes associated with language development. Kolstoe (3) states, "Most descriptions of language development use the imposed framework of grammatical construction. Scales are built on the complexity of the mode of expression rather than on the complexity of thought expressed or the degree of communication achieved."

Applying a rather poor analogy, but one that clarifies the principle under discussion, one would not consider basing an eighth grader's previous academic training on the Miller Analogy Test or the Graduate Record Exam. Therefore, should it be dictated here and now that language and behavioral development of low functioning mentally retarded are beyond the scope of improvement? On the contrary, it is the belief of this experimenter that judgement be held until such time as human behavior can be assessed at a level commensurate with the level under investigation.

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Table 1 Frequency of Therapists Indicating Improvement/ Non-improvement Via Subjective Reports

Therapist	I	NI
A	4	2
B	3	3
C	3	3

Table 2 Comparison between Objective Test and Therapist's Subjective report

		Obj. Test	
		I	NI
Subj.	I	9	1*
Report	NI	0	8

*Questionable, but would tend to include in I - I cell.

$p = .0002$

Table 3 N and Percentage of Ss (N=10) Indicating Improvement re Test Method

Test Method	N Responding	% Responding
Intelligible speech	0	0
Increased echolalia	3	33.3
Increased responses (receptive skills)	10	100.0

Table 4 Subject Frequency Comparison between Improvement and Therapeutic Approach

	I	NI
Mower	3	3
Motokin.	4	2
Aud. Stim.	3	3

Table 5 Average Number of Absenteeisms, per Subject, as a Result of Two 30-Day Spot Checks

I	NI
3.3	2.85

Table 6 Subject Frequency Comparison between Improvement and Sex

	I	NI
Male	3	5
Female	7	3

$p = .186$

Table 7 Subject Frequency Comparison between Improvement and Race

	I	NI
Caucasian	8	8
Negro	2	0

p = .340

Table 8 Subject Frequency Comparison between Improvement and Recipients of Pharmaceutical Sedation

	I	NI
Medicated	3	4
Non-med.	7	4

p = .352

Table 9 Subject Frequency Comparison between Improvement and Clinical Diagnosis

	I	NI
CCDNFS	3	2
Mongoloid	4	0
Unspecified	2	1
Encephalopathy	0	3
Microcephaly	0	1
Neo-natal	1	0
Cerebral Palsy	0	1

Table 10 Comparisons of Mental Ages in Years and Months between Ss Indicating Improvement/Non-improvement

	I	NI
MA Range	1-3/3-3	0-7/2-3
MA $\bar{X}$	1-8	1-5
MA Mdn.	1-8.5	1-6

THE TRAINING OF MENTALLY RETARDED CHILDREN WITH SENSE MODALITY DISABILITIES

Gerald S. Hasterok

Introduction

In a review of literature on learning ability, Woodrow (1946) observed that "it must be concluded that there is little relation between intelligence and the ability to learn." Recently, Clarke (1962) has shown that with simple perceptual motor tasks Woodrow's conclusion can be demonstrated. Milgram and Furth (1963) and Cantor and Ryan (1962) have also reported studies in this area. Clarke found that the performance of severely retarded individuals could equal that of normal individuals if the retarded were given prolonged periods of training. Through simple discrimination problems involved in card-sorting, Clarke (1963) also has reported evidence of improved coneptual discrimination with the severely retarded.

To date, however, there is little evidence to show that mentally retarded individuals learn more abstract tasks as well as normals, even if given extensive periods of training.

One such type of task, for example, is paired-associate learning. Studies dealing with paired-associate learning of the mentally retarded have received much attention in the past few years. Recent work from several authors has suggested that many factors may be related to peformance on this type of task. Jensen and Rohwer (1963) found that speed of learning was increased when subjects were able to form verbal relationships between the stimulus and response terms. Blue's (1963) work has shown that it was more difficult to learn verbally presented paired associates than visually presented pairs O'Connor and Hermelin (1962) have suggested that cross modality stimulus-response tasks (i.e. visual-auditory) are not equal in the ease with which they are learned by mentally retarded children.

With respect to abstract tasks in general, Matthews and Reitan (1963) have shown that subjects with good abstraction ability perform better on problem-solving tasks, whereas subjects with poor abstraction ability perform better on experience-related problems. They suggest, in agreement with Gallagher (1957), that subjects may be unable to perform well on concept formation tasks because of lack of an attentional set rather than because of the inability to perceive and organize material.

Thus, three factors appear to be relevant in learning paired-associate tasks. One, the sense modality by which the material is presented. Two, the opportunity to form verbal relations between the stimulus and response. And three, the degree to which a set to attend can be developed and maintained.

Present Study

The present study dealt with the first of these factors. It concerned the ability of mentally retarded children to overcome learning disabilities in either the auditory or visual sensory modality. These two types of disabilities are well-known in the teaching field. Most teachers have had children in their classes who learn well by a visual method but learn poorly by an auditory method, and vice versa.

Basically, the study consisted of training two groups of mentally retarded children both on an auditory task and on a visual task. One group of five children was identified by the Illinois Test of Psycholinguistic Abilities (ITPA) as having poor auditory modality abilities. This group was designated the Auditory Low Group. Another group of five children was found who had poor visual modality abilities as indicated by the ITPA. This group was called the Visual Low Group. Both groups consisted of thirteen and fourteen-year-old borderline-educable and educable mentally retarded children. Each subject was individually trained for a period of 32 days on the auditory and visual tasks. We were interested in determining if these children could be trained to use their less facile modality as well as other modalities in which they had greater proficiency.

Results

At the end of the training period the results appeared to show that learning by an auditory method was quite difficult for the Auditory Low Group. Learning by a visual method for this group reached a 70% level of proficiency after only five days of training, whereas it took this group fourteen days to reach the same level in learning by an auditory method.

The second major finding was that there was a wide difference in the level of learning between the two methods. Learning by a visual method was quite superior to learning by an auditory method. At the very start of training the Auditory Low Group seemed to "catch on" rather quickly in solving the visual problems. That is, there was a rapid rise in the learning curve during the first four days of training. With respect to learning by an auditory method, this group seemed unable to "figure out" or to learn how to solve the auditory problems. However, by the end of training, these subjects with auditory modality disabilities appeared to be starting to learn how to learn. Their learning curve showed a sharp upward trend. It appeared that learning by the auditory method was quite difficult for this group, but that after a period of consistent training they had started to improve their learning performance using an auditory sensory modality.

Results obtained for the group with visual modality disabilities were different from those obtained for the Auditory Low Group. For the group with poorer learning ability in the visual modality it seemed that it did not make a great deal of difference what method was used. The percentage of correct responses made under a visual method of learning was almost the same as learning by an auditory method. In other words the two learning curves were quite close together. In fact, the curve for visual learning, which represented the Visual Low Group's poorer sensory modality, was actually slightly higher than the group's auditory learning curve. Secondly, the Visual Low Group made large gains under both methods at the start of training, that is, both learning curves showed a sharp rise at the beginning of the training period.

Thus the group with deficiencies in learning by a visual sense modality did not show a clear superiority in learning by an auditory method. It had been expected that children with visual modality disabilities would perform better on auditory tasks since the auditory modality was their better learning modality.

Consequently, this same Visual Low Group, with poorer learning abilities in the visual mode and expected superior ability in learning by an auditory modality, were given 10 days of additional training on auditory material. The purpose of the additional training was to determine if the group would demonstrate their predicted superior ability in learning auditory material after extended training.

After the group with poor visual sense modality abilities had received ten more days of auditory training they were tested on both auditory and visual material. The results showed that after the additional training, auditory learning performance was superior to visual learning performance. They also showed a good "set" towards learning by the auditory sense modality. That is, on the first trial they made 50% of responses correct, on the second trial the number of correct responses had risen to around 75%, and by the third trial the group as a whole was getting all of the responses correct.

The results of the study can be only suggestive because of the small number of children. However, considered in relation to other studies with the ITPA and research drawn from other areas, there appear to be four factors which may influence the ability to learn by different sense modalities. These are:

1. There may be a relation between levels of intelligence and a superior sensory modality. Both the present study, and Smith's (1962) work have suggested that trainable children show greater psycholinguistic deficits in auditory-vocal abilities.

2. That retarded children may be able to perform as well as normal children on certain types of tasks if learning sets are built up by training under highly controlled conditions.

3. That it may be more difficult for retarded children to overcome auditory modality disabilities than visual modality disabilities.

4. There may be two types of language abilities, One, "concrete" language abilities learned by means of a visual-motor channel of communication; and two, "abstract" language abilities which are learned by means of an auditory-vocal sensory modality.

Implications for Teaching

If some of these factors are supported by further research, it seems they could be utilized in the teaching of mentally retarded children.

The research done so far suggests that we might consider two changes in common classroom activities. The first change would be to spend more time in teaching children how to use abstract language symbols rather than concrete language symbols. Several research studies have reported that in academic subjects some kinds of retarded children do better in regular classes than in special classes. One might ask if such a finding could be at least partially related to the emphasis that is placed on abstract language concepts in the regular class, in comparison to the "concrete" language concepts stressed in special classes. Also, in a large study done here in Chicago, many overachieving retarded children were identified. It might prove useful to examine the psycholinguistic abilities of these children compared to those of underachieving retarded children to see if there were different patterns of psycholinguistic profiles between the two groups.

The second change in classroom practices that may come is to control the learning situation of the child in a more rigid manner than a teacher or even a tutor can provide. That is to say, to teach him first how to attend, so that he can find out what he is supposed to learn and then build up learning sets for many different types of material. These types of activities would require that material be very highly organized and controlled. One way of presenting such highly programed material would be through the use of teaching machines.

Summary

In summary, several factors have been identified which deal with the relation of sensory modalities to learning. It seems reasonable to expect that on the basis of these factors new methods of teaching can be developed. Such methods may aid substantially in the remediation of sense modality disabilities.

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TRAINING OF VISUALIZING ABILITY BY THE KINESTHETIC METHOD OF TEACHING READING

Esther Hirsch

Since the standardization of the Illinois Test of Psycholoinguistic Abilities (McCarthy and Kirk, 1961), a test assessing nine psycholinguistic functions, attention has been directed to the question of whether disabilities in each of these nine areas can be improved through training. One such psycholinguistic area is visualization which includes sequential visual memory for discrete elements of a stimulus and memory for visual forms (operationally defined by the tests described in the procedure). Kass (1962) found deficits in memory for visual forms correlated with reading disabilities in normal children, while Goins (1958) found no correlation of the two. In addition, Goins reported that tachistoscopic training of visual memory for forms did not improve reading achievement. Although disabilities in sequential visual memory have been correlated with reading disabilities in normal children (Kass, -962; Raymond, 1955) and in deaf children (Blair, 1957), no attempts at training this type of visualization are reported in the literature. On the basis of the statement by Harris (1961, p. 386) that "sensory impressions (acquired through the kinesthetic method) reinforce visual impressions and seem to be of value to children whose visual memory is poor," the use of the kinesthetic method of teaching reading (Fernald, 1943) is suggested as a means of training visualizing ability as well as teaching reading.

The purpose of this study is to investigate the following hypothesis with mentally retarded children:

> Fernald's kinesthetic method of teaching reading with meaningful material develops sequential visualizing ability with non-meaningful material.

PROCEDURE

Subjects

Fourteen educable mentally retarded children enrolled in special classes in two midwestern cities were used as subjects for this experiment. To select these fourteen subjects, sixty nine children were given a writing pre-test, constructed by the writer and Sutton (1963), to determine whether they could write the letters and forms of the visualization tests and the training. Then these sixty nine children were given four visualization tests, which are discussed later, and the Gates Primary Test of Word Recognition (Gates, 1943). The fourteen children with the lowest mean scores for all four tests and with reading grade placements of 2.0 or less were selected as subjects. Each of the fourteen subjects' mean score for the four tests was ranked from highest to lowest. After adjacent scores were matched, a coin was tossed to determine which member of each pair was placed in the experimental group. The left hand side of Table I shows the means for all four tests for each member of the seven matched pairs.

TABLE I

DIFFERENCES OF PRE AND POST TRAINING MEANS
OF THE FOUR VISUALIZATION TEST SCORES

	Pre-training mean scores			Post-training mean scores		
Pair	Exp. Grp.	Con. Grp.	Diff.	Exp. Grp.	Con. Grp.	Diff.
1	10.50	11.25	-.75	15.75	13.25	2.50
2	7.50	7.50	.00	14.00	8.50	5.50
3	8.25	8.25	.00	11.00	9.50	1.50
4	11.25	12.50	-1.25	15.75	14.00	1.75
5	10.25	10.25	.00	16.75	10.75	6.00
6	8.50	8.50	.00	14.75	9.25	5.50
7	9.75	9.25	.50	10.50	14.50	-4.00
Mean	9.43	9.64		14.07	11.39	
S. D.	1.36	1.78		2.43	2.47	
				t = 2.03 p = .05		

Table II presents a description of the sample in terms of the mean CA, MA, IQ and reading grade placement. Mental ages and IQ's were available from school files for all subjects because individual intelligence tests administered by qualified psychological examiners are required for special class placement of the educable mentally retarded. If the most recent testing was after September 1, 1961, the IQ was accepted and the MA was corrected to date. The writer administered the Stanford Binet Intelligence Scale (Terman and Merrill, 1960) to the six subjects whose last testing was prior to the above date.

TABLE II

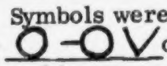
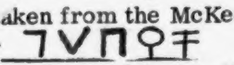
DESCRIPTION OF SAMPLE

		CA	MA	IQ	Reading Grade
Experimental Group	Mean	9-1	6-6	70	1.5
	S. D.	1-1	0-6	4.3	-
Control Group	Mean	9-0	6-8	73	1.4
	S. D.	0-7	0-6	4.9	-

Measuring Instruments

Sequential visualizing ability was measured by four tests. Tests II, III and IV were devised by the writer and Sutton (1963). Each of these tests varied on two aspects, the nature of the stimulus which was familiar or unfamiliar and the mode of response which required recognition or writing from memory.

Test I. The visual motor sequential sub-test of the Illinois Test of Psycholinguistic Abilities (ITPA) was employed to assess visualization ability with unfamiliar material and a recognition response. After a sequence of geometrical designs such as □□△ or ○□◇◇ is presented for five seconds and then removed, the subject must select from several choices the appropriate parts to be included in duplicating the sequence from memory. A second trial is given if the child inaccurately sequences any of the items. Two points credit is given for passing on the first trial and one point for passing on the second. McCarthy and Kirk (1963) report a split half reliability coefficient of .93 for this sub-test of the ITPA.

Test II. This test includes unfamiliar material and requires the subject to write his response from memory. Symbols were taken from the McKee alphabet (1948) and arranged in sequences such as  or  After a five second presentation, the stimulus card is removed and the subject writes the symbols in proper order. A second trial is given if an incorrect sequence is made on the first trial. The scoring procedure is the same as that used for Test I. A reliability coefficient of .91 was obtained by the Kuder Richardson formula for weighted items (Guilford, 1954).

Test III. This test assesses visualizing ability with familiar material and a recognition response. Nonsense words such as rhu or rniuk are shown for five seconds and then removed. The child selects the correct response from a choice of four nonsense words such as rhy, rhu, hru, ruh or niurk, kiurn, rkniu, rniuk. One point is given for each of the items passed. The Rulon method (Guilford, 1954) yielded a split half reliability coefficient of .94.

Test IV. This test is similar to Test III except that a writing from memory response is required. Letters arranged in the same sequences as the McKee symbols of Test II comprise the nonsense words. After removal of the stimulus card containing a word such as *ftmr* or *idgiso*, the child writes the letters from memory. If a correct response is not obtained on the first trial, a second one is given. Scoring is similar to that of Test II. A reliability coefficient of .96 was obtained by the Kuder Richardson formula for weighted items.

As was noted earlier, the nature of the stimulus material and the nature of the response were varied on each of the four tests, but a five second stimulus exposure time and sequential visual memory for discrete elements were common to all four tests. For complete forms of the above tests see Hirsch (1963).

Remediation

Prior to the twenty day training program in the kinesthetic approach to reading, all experimental subjects were tested with 150 three and four letter words selected from Durrell's vocabulary list (1956). Those words recognized by any of the children were deleted so that all subjects could be trained with the same 100 words (see Hirsch, (1963). Each day, five words randomly selected from the 100 words were taught in individual tutoring sessions conducted by the writer or an assistant.

The following procedure was used with each of the experimental subjects.

a. Labeling. A card with the stimulus word was presented and labeled by the tutor.

b. Tracing. The child was instructed by the tutor to "Trace it and say it." Finger contact with the card was stressed.

c. Writing from memory. After removing the card, the tutor said, "Write it and say it," and the child wrote the word from memory.

d. Evaluating. The card was presented again and the tutor said, "Are they the same?" This forced the child to compare his response with the stimulus card.

e. If the word was incorrectly reproduced, the process of labeling, tracing, writing from memory, and evaluating was repeated until the word was correctly written. The tutoring period ended when the child accurately wrote from memory each of the five words. These training periods lasted from ten to twenty five minutes.

In terms of the visualization model, word recognition by the Fernald method, as used in this study, includes the two constants of a five second stimulus exposure time and sequential visual memory of discrete elements of a stimulus. In addition, the variables of familiar material and a writing from memory response are utilized.

Research Design

Sixty nine children were given a pre-test of writing letters and forms, four visualization tests and a reading test. The fourteen children with the lowest mean scores for the four visualization tests and with reading grade placements of 2.0 or less were selected as subjects. The seven subjects randomly assigned to the experimental group received trining in the kinesthetic approach to reading with meaningful material. The seven matched mates of the experimental subjects were placed in the control group and received no training. When twenty days of remediation was given to the experimental group, both groups were re-tested with the four visualization tests. A one tailed *t* test for matched pairs was used in the analysis of the data. A level of statistical significance of .10 was set up because this is a pilot study seeking to determine the advisability of further exploring the previously stated hypothesis.

RESULTS

The differences of the experimental and control groups after training were analyzed by comparing the groups in terms of: (a) the changes in the pre and post-training means of the four visualization test scores (b) the change scores on each of the four visualization tests.

Differences in Total Change Scores

Table I presents the differences of each of the seven matched pairs on the pre-training mean scores for the four visualization tests and the post-training mean scores. It can be seen that before training, the mean of the total change scores for the experimental and control groups, respectively, were 9.43 and 9.64; however, after training the means for these two groups are 14.07 and 11.39. It also should be noted that after training, six of the seven experimental subjects obtained larger total change scores than their control partners. In the original matching of means the greatest difference of a pair was 1.25 points, but after training the minimum difference is 1.74 points and the maximum is 6.00 points (ignoring the direction of the difference). This difference between the groups was found to be significant at the .05 level by the *t* test for matched pairs. Therefore, it no longer seems possible to consider these groups as being matched.

The only reversal of the trend favoring the experimental group was evidenced in the seventh pair. The teacher of the control member of this pair reported that this child made sudden advances in reading during the time of this study. This reversal of predicted performance is ascribed to this child's unusual progress in reading.

The results of the total change scores tend to lend confirmation to the hypothesis that Fernald's kinesthetic method of teaching reading with meaningful material develops visualizing ability with non-meaningful material.

Differences in Change Scores for Each of the Four Visualization Tests

Table III shows the means of the differences of the pre and post-training scores or change scores for each of the four visualization tests separately, the obtained *t* values, and the resulting probability levels.

Test I - Visualization of unfamiliar material with recognition response. As reported in Table III a probability of .25 was associated with occurrence of the results of Test I. Therefore, the hypothesis that Fernald's kinesthetic method trains visualizing ability with unfamiliar material and a recognition response does not appear to have been confirmed.

However, two indications of a slight trend in favor of the experimental group were noted: (a.) The mean of the change scores for the experimental group was 2.14 while the mean for the control group was .57. (b.) Five of the seven experimental subjects received higher change scores as opposed to only two of the seven control subjects.

Although the influence of the training appears to have consistently affected the experimental group, the size of the influence was small. This can be noted by comparing the experimental group's mean change score of 2.14 on Test I with the five point mean increases obtained by this group on each of the other tests. It is possible that the small size of the gain scores influenced the statistically insignificant *t* which was obtained. These small change scores cannot be attributed to a smaller total score possibility as Test III has the smallest possible total score. Three reasons are postulated for the slight trend toward a consistent, but small influence of the training on Test I scores:

TABLE III

MEAN CHANGE SCORES FOR EACH OF THE
FOUR VISUALIZATION TESTS

	Test I		Test II		Test III		Test IV	
	Exp.	Cont.	Exp.	Cont.	Exp.	Cont.	Exp.	Cont.
Mean	2.14	.57	5.14	1.43	5.72	1.14	5.29	3.86
S. D.	2.54	3.25	2.85	3.15	5.99	4.05	3.40	4.22
t =	.80		2.41		1.62		.63	
p =	.25		.05		.10		.30	

(a.) As more items are passed on Test I the complexity of the forms as well as the number of forms is increased. Only the number of discrete elements is increased on the other tests. Therefore, visual discrimination may be involved to a greater extent on Test I than on the other tests. This may have prevented more substantial score increments.

(b.) These results may be attributed to the degree of similarity between the test and the training. Sequential visual memory for discrete elements and a five second stimulus exposure time are constant to both Test I and the training. These constants may account for the slight trend toward consistent change scores for the experimental group. Test I differed from the training in both the nature of the response and the familiarity of the stimulus material; whereas, the other three tests shared at least one of these variables with the training. Consequently, the greater disparity between Test I and the training may have resulted in the experimental group's receiving smaller score increments on this test than on the other three tests.

(c.) The consistency of the score increases for the experimental group may have resulted from chance.

Test II - Visualization of unfamiliar material with a writing from memory response. Six of the seven experimental subjects received higher change scores indicating a consistent influence of the training. The size of these change scores was large as they ranged from four to nine points. Consequently, the influence of the training appears consistent and also of considerable magnitude. Table III shows that these results were significant at the .05 level when the t test was applied. Therefore, these results tend to support the hypothesis that the Fernald method does train visualizing ability for unfamiliar material with a writing from memory response.

It is possible to attribute these results to the fact that Test II and the training shared the two constants of visualization as defined in this study. In addition, a writing from memory response was required in both the test and the training. The three commonalities of the training and Test II items apparently enabled the subjects to transfer any visualizing ability acquired through training from familiar material to unfamiliar material.

Test III - Visualization of familiar material with recognition response. Five of the experimental subjects obtained higher change scores. Four of these five were of considerable magnitude, ranging from seven to fifteen points. Hence, a consistent and sizable influence of training was noted. Table III shows that the results of Test III were significant at the .10 level with the t test. These results seem to confirm the hypothesis that the kinesthetic method of teaching reading with meaningful material does train visualizing ability with familiar material and a recognition response. It seems that training with familiar material in a meaningful context resulted in the transfer of any visualizing ability acquired to familiar material in a non-meaningful context.

Test IV - Visualization of familiar material with a writing from memory response. Table III shows that a probability level of .30 was associated with results of Test IV. This does not seem to support the hypothesis that the kinesthetic method trains visualizing ability with familiar material and a writing from memory response. Six of the seven experimental subjects and six of the seven control subjects received positive change scores indicating consistent improvement in both groups. However, the increase in the change scores favored the experimental group in six of the seven pairs. The sign test, which only analyzes the differences between pairs and does not take into account the fact that the control group did increase as does the t test, yielded a .06 level of significance for these same data.

The control member of the seventh pair obtained the largest change score of both the experimental and control subjects. As previously mentioned this subject learned to read during the training period. The writer postulates that the insignificant results obtained are due to this case. If this subject and her matched mate are deleted in the analysis of this test and a t test is applied to the remaining six pairs, a t of 3.78, significant at the .01 level, results.

Test IV and the training, share the four following commonalities: sequential visual memory for discrete elements, a five second stimulus exposure time, familiar material and a writing from memory response. They differ because the training utilizes meaningful material while Test IV uses non-meaningful material. In view of the fact that of the four tests, Test IV is most comparable to the training, the results of this test should show the greatest significance. If the seventh pair is deleted, Test IV does show the greatest statistical significance. Therefore, it is postulated that if more subjects were used (so that one case would not radically affect the results) Test IV would show the greatest significance of the four tests.

SUMMARY AND DISCUSSION

Summary

The purpose of this study was to investigate the hypothesis that Fernald's kinesthetic method of teaching reading with meaningful material develops sequential visualizing ability with non-meaningful material.

Fourteen educable mentally retarded subjects matched on their mean scores on four visualization tests served as subjects. The seven subjects randomly assigned to the experimental group received training in the kinesthetic method with five words daily for a period of twenty days. The seven control subjects received no training.

Four tests of sequential visual memory for discrete elements were administered to all subjects before and after the training period. Test I and Test II used unfamiliar material, but Test I required a recognition response while Test II required a writing from memory response. Test III and Test IV used familiar material, but Test III required a recognition response and Test IV a writing from memory response.

The results of this experiment showed that:

(a.) The experimental group obtained higher total change scores (significant at the .05 level) than the control group.

(b.) Although the results of all four of the tests were in the predicted direction, only those tests which shared at least one variable (nature of stimulus or nature of response) with the training showed statistical significance.

Limitations of the Study

A small number of subjects were used and a short period of remediation was given because this was a pilot study. Therefore, the only definite statement that can be made from this study is that since the results tended in the direction of the hypothesis, further exploration of the hypothesis seems advisable.

The results of this study are limited to sequential visual memory for discrete elements and cannot be generalized to memory for visual forms. Also, it is not known if comparable results would be obtained with stimulus exposure times other than the five seconds used in this study.

Discussion

As previously stated visualizing ability on a test task can be developed by the kinesthetic method when unfamiliar material or a writing from memory response is shared be the training and the test items. Visualizing ability with familiar material in a meaningful context developed by the kinesthetic method seems to transfer to visualizing tasks with familiar material in a non-meaningful context. Past research has shown that the more identical elements shared by the training and a test, the more transfer. In this case the training and the two tests of familiar material shares all of the same letters; therefore, as might be expected, transfer resulted. The writing from memory response used in the kinesthetic method seems to develop visualizing ability by forcing the child to focus his visual attention on the discrete elements of the stimulus. Thus, the kinesthetic method may be training attention by the use of motor cues.

The positive results of this pilot study would warrant expansion of further research into the training of children with defects in visualizing ability. Future studies of this nature should provide training for a period of six months to one year. In addition, the effect of the kinesthetic method on memory for visual forms should be noted. Tests of this type should be included in the pre and post-training test battery. The writer also suggests the investigation of the effects of the kinesthetic method on school achievement.

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ROLE PLAYING AND DISCUSSION AS TRAINING METHODS FOR CHANGING ROLE DEFINITIONS OF ATTENDANTS FOR INSTITUTIONALIZED MENTAL RETARDATES

Floyd E. McDowell

Introduction

The purpose of this study was to compare role playing, discussion, and role playing combined with discussion as training methods for attendants in a state residential facility for mental retardates. The study attempted to determine which method of training was most effective in changing role definitions of attendants in specific resident-centered, verbal-interaction, job situations.

In public residential facilities for the mentally retarded, there is one area where there seems to be an acknowledged "steel cable" of commonality. This is an awareness of the important role played by the attendant in the daily program that is offered each retarded resident (Birch, 1962; Cleland, 1962; Daly, 1063, Edgett, 1947; Fleming, 1962; Fox, 1950, Graves, 1958; Porter, 1961; Roselle, 1950; Shafter, 1960; Stevens, 1963; VonBulow, 1961). These attendant personnel, sometimes called house parents, psychiatric aids, or other names, comprise over 50 per cent of all personnel employed by residential facilities for mental retardates. Attendants are the subsitute mothers and fathers to the retarded residents. There is general agreement that it is their attitude and behavior which will either foster or hinder the residents' personal and social growth.

Recent literature and research have shown an increasing emphasis on resident-centered aspects of attendant training and job application. Scher (1956) pointed out that the growing emphasis in progressive institutional practice on what might be called the living services, on professionally planned and mediated routines, has placed additional responsibility on the house parent or attendant. Shafter emphasized that the great task was not to coin new terms and adopt therapeutic and training fads, but to continue to work toward an environment which is socially and educationally corrective. Daly proposed that probably the most effective means of conducting a training program for residential employees is through the problem-centered approach. Stevens stated it is the administrator's responsibility to insure the development of effective in-service training programs, and to see that all the needs of the mentally retarded within an institution are adequately met by trained personnel.

Shotwell, Dingman, and Tarjan (1960) conducted a study at Pacific State Hospital (residential facility for the mentally retarded in California) to determine the relative importance which various types of institutional employees attach to activities performed by attendants. They found that attendants and attendant supervisors attached more importance to job aspects other than those relating directly to residents, whereas administrative and professional personnel attached more importance to activities of attendants which related directly to residents. Fleming (1962) conducted a study at Rainier State School (residential facility for the mentally retarded in Washington) to illustrate the usefulness of Flanagan's (1954) critical incident technique in obtaining empirical information that could be used in establishing a curriculum for resident-care aspects of in-service training. A total of 151 effective and 151 ineffective interactions were recorded and categorized. Attendants were observed in 56 per cent of the effective interactions and in 79 per cent of the ineffective interactions with residents. Two-thirds of the ineffective interactions were verbal interactions, emphasizing the importance of training attendants in what to say to residents. Jansen and Stolurow (1962) conducted an experiment at Lincoln State School (residential facility for the mentally retarded in Illinois) to determine if role playing was a feasible and acceptable method of training attendants. They concluded that role playing was a feasible and potentially effective means of training attendants, and added that there was a need for additional study to develop optimum conditions. Features from all three studies were incorporated in this study with major focus on changing and improving resident-centered role-definitions of attendants.

Method

The eighty-six Ss who participated in the study were female attendants who worked on the morning and afternoon shifts at Pinecrest State School, Pineville, Louisiana. All Ss were administered an Attendant Role Definition Scale by a qualified examiner. Random assignment to four groups was accomplished with the role-playing, discussion, and role-playing-combined-with-discussion groups receiving twenty Ss each, and the contrast group containing twenty-six Ss. Each of the three experimental groups was further divided into two smaller groups of ten Ss each, and separate training sessions were conducted for each group. A second contrast group was obtained from Greene Valley Hospital and School (residential facility for the mentally retarded in Tennessee), and these data were compared with the three experimental groups.

Twenty resident-centered verbal-interaction job situations were developed, and ten were randomly selected for use in the experimental training program. The job situations represented the following critical behavior areas of attendant-resident verbal interaction identified by Fleming: counseling or instructing a resident about some skill; counseling or instructing a resident about himself or his behavior; counseling or reassuring a worried or emotionally upset resident; showing skill or prudence in management and control; and stressing the abilities and achievements of a resident.

Role-play briefing sheets were developed for the resident-centered situations. The briefing sheets contained the following classes of interaction: who, what, where, when and whither (goal or objective). Both persons were given information as to what the verbal interaction was about, although the content of the briefing sheet differed for the person taking the role of the attendant and the one taking the role of the resident. The last sentence of each briefing sheet was written so that the role players would easily begin to talk. The same briefing sheets were used with all experimental training groups. Content was common, and only the methodology was varied.

Each experimental group had five separate training sessions. Each training period was for one hour, with two job situations from the same critical behavior area of interaction role-played and/or discussed. Before training began, experimental groups were told the project was a study of job situations experienced by attendants who work with institutionalized mental retardates. They were asked to role-play and/or discuss all job situations according to their own feelings and reactions. Constant reassurance was given that their expressions and actions were strictly confidential.

Effects of the experimental training program were measured by the mean difference in gain scores for all five groups as measured by the Attendant Role Definition Scale. Four of the polar terms (Important-Unimportant; Hard-Easy; Like-Dislike; Unfair-Fair) used in the Jansen and Stolurow Semantic Differential I were used in the Attendant Role Definition Scale. The Scale contained twenty resident-centered and twenty job-centered situations representative of an attendant's work. With this instrument, each of the job situations was rated on the four polar terms, each of which was the end point of a seven-point scale. Each of these four scales had the score of 1 assigned the favorable pole and the score of 7 assigned the unfavorable pole. This allowed a raw score range of from 4 to 28, and a possible difference score which could range from 0 to 24 for each job situation and concept used in the study.

Results

All hypotheses were related to the contrast groups' scores on the Attendant Role Definition Scale. Using the contrast group from the same residential facility, the investigator found that their gain scores strongly indicated contamination as a number of Ss scored on or near the favorable polar terms on the posttest. Analysis of variance at the .10 level of significance was performed, and no significant differences between groups were realized. As the contrast group of a pilot study at Clover Bottom Hospital and School (residential facility for the mentally retarded in Tennessee) had negligible gain scores, a second contrast group was obtained from another residential facility. Using this contrast group's gain scores, statistical analysis was performed at the .10 level of significance. Role playing, discussion, and role playing combined with discussion showed a greater positive gain in role definitions than the contrast group. At the .10 level of significance, the role-playing group showed greater positive gain in role definitions than the other experimental groups.

All Ss in the residential facilities involved in the study had much lower scores on the twenty job-centered situations than on the twenty resident-centered situations. They saw their role as more job-centered than resident-centered as measured by the Attendant Role Definition Scale. All Ss scored the resident-centered situations and job-centered situations near the favorable polar term for the Important-Unimportant scale. Scoring moved progressively away from the favorable polar terms on the Unfair-Fair, Like-Dislike, and Hard-Easy scales.

Findings supported Jansen and Stolurow's study which showed that role playing enhances the changing of role definitions of attendant personnel as measured by a self-rating scale. Results of the study may only be viewed as tentative and in need of further experimental exploration since there is no evidence of what changes, if any, took place in the behavior of the attendants in their actual duties at the residential facility.

Implications for Attendant Training

The results of the experiment indicate that a resident-centered role definition can be enhanced by attendants who role play attendant-resident verbal-interaction job situations. Content of the study could be used as a separate training program or could be added to an ongoing training program. Personnel involved in resident-centered aspects of attendant training could work with attendants in creating attendant-resident job situations which would be role played.

Using the Attendant Role Definition Scale, or a similar instrument, a residential facility could determine whether their attendants see their role as primarily job-centered or resident-centered. Both direction and degree of role definition could be determined. This should be valuable information for a residential facility in planning and conducting training programs for attendant personnel. Utilizing this kind of information, more training and time could be focused on areas or specific attendant-resident job situations where an improvement in role definition is desired. The importance of the attendant in the daily lives of institutionalized mental retardates demands that every effort be made to improve the resident-centered aspects of the attendant's role.

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COMPARISON OF PSYCHOLINGUISTIC PATTERNS OF GIFTED AND RETARDED CHILDREN

Max W. Mueller

A perusal of the literature dealing with psychological testing of children reveals considerable evidence of differential patterns of ability between children of different ability levels. Gallagher and Lucito (1961) demonstrated differences in the patterns of scores on the WISC, Baumeister and Bartlett (1961a, 1962b) demonstrated a slightly different factor structure using WISC scores of normal and retarded children. Alper (1960) showed that WISC scores of retardates exhibited patterns of strength and weakness which were inconsistent with the fact that the test is designed with equal means and standard deviations on all subtests, and Terman (1925) has suggested that gifted children tend to be more superior in verbal abilities. In addition, a number of authors have suggested that there are qualitative as well as quantitative differences in the performance of highly intelligent and retarded children on a variety of other tests.

The appearance of the Illinois Test of Psycholinguistic Abilities or ITPA (McCarthy and Kirk, 1961) presented another opportunity to investigate qualitative differences in the performance of children of different intellectual levels. The ITPA is a test of differential language abilities which measures nine specific language functions as well as yielding a total language age score. The abilities measured involve two levels (representational and integrative), four channels (auditory, vocal, visual, and motor), and five processes (decoding, association, encoding, automatic, and sequencing) of language functioning. Based on previous research and observations involving intellectually exceptional children, it is possible to advance several hypotheses concerning differences in psycholinguistic patterns, as measured by the ITPA, of bright and retarded children.

First, in view of the frequently occuring observation that gifted children tend to show the greatest superiority in highly verbal areas, it seems reasonable to expect that abilities requiring use of the auditory and vocal channels of language might be superior to those involving the visual and motor channels. Both practice in the field and research evidence suggest that retardates tend to perform better in performance than in verbal areas. Since the visual and motor sections of the ITPA seem more closely related to performance abilities than do the auditory and vocal tests, it might be assumed that retardates would score higher on the visual and motor scales. The principle hypothesis of this investigation derives from these observations.

> Hypothesis 1 (H1): Language profiles on the ITPA will indicate that for gifted subjects, auditory and vocal subtests will be higher than corresponding visual and motor tests, and that the profiles of retarded subjects will show the reverse.

Considerable experience in the use of the ITPA with retarded subjects (Smith, 1962; Mueller and Weaver, 1964; Mueller and Smith, 1963; Semmel and Mueller, 1963) suggests that language age tends to fall considerably below mental age as measured by the Stanford-Binet. Since it has often been suggested that language is one of the precesses most seriously impaired in mental retardation, and conversely that gifted children tend to be particularly able in language processes such as vocabulary and reading, it seems likely that the discrepancy between language age and mental age would also differ between gifted and retarded children. This reasoning leads to the second hypothesis.

Hypothesis 2 (H2): For mentally retarded children mental age will be in excess of language age while the reverse will be true for gifted children.

Logical analysis of the ITPA subtest items suggests that the association subtests are relatively more similar to intelligence test items than are other subtests. Also, association might be thought of as the highest level process being evaluated by the ITPA. These assumptions lead to a third hypothesis.

Hypothesis 3 (H3): Gifted subjects will score consistently high on the association subtests as compared with other subtest scores, but this will not be true of scores of retarded subjects.

Finally, it is suggested by the ITPA Manual that tests at the representational level tend to involve higher mental processes while tests at the integrative level involve fairly basic processes. Some authors have also suggested that retardates tend to do better in comparison with other children in those areas which do not involve higher mental processes. If these assumptions are accepted, a fourth hypothesis seems tenable.

Hypothesis 4 (H4): Gifted subjects will tend to show a great superiority to retardates on tests at the representational level than on tests at the integrative level.

The purpose of this investigation is to evaluate ITPA profiles of gifted and retarded children in terms of the hypotheses presented previously. In addition, any further differences which might appear in the data will be evaluated.

Method

Subjects: Three groups of 21 subjects each were utilized in the study. Group I was identified as the gifted or high IQ group, all subjects having obtained IQ scores of 120 or higher. Group II consisted of educable mentally retarded (EMR) children as defined by having obtained IQ scores of between 50 and 80, and Group III consisted of trainable mentally retarded (TMR) children defined by having obtained scores between 30 and 49. In all cases only scores of individually administered tests of intelligence were accepted, and in most cases Stanfrod-Binet scores were utilized. The two retarded groups were further identified either by their placement in public school classes for the retarded or in an institution for the retarded. In addition to this grouping, subjects were matched within six months on mental age. This condition is an attempt to increase the comparability of the three groups based on the findings that overall language ability trends to be highly correlated with mental age (Smith, 1962; Kirk & McCarthy, 1961; Mueller & Weaver, 1964; Weaver, 1964).

Procedures: The ITPA was administered to all subjects by qualified examiners following the standard procedures for administration outlined in the test manual. Raw scores obtained were converted to age equivalent scores from the tables presented in the test manual, and these scores were utilized in the various statistical analyses. It would have been preferable to have used standard scores rather than the age equivalents, but the advanced chronological age of some of the subjects made the standard score norms inappropriate.

Statistical comparisons involved two primary analyses, a simple randomized analysis of variance using difference scores between mental age (MA) and language (LA) for the threee groups, and analysis of differences among subtest scores by a Type I (Lindquist, 1956) mixed design analysis of variance. In addition, the subtest means for each of the groups were plotted graphically, and some observations made from visual inspection of this figure.

Results

Reference data on the constitution of the three experimental groups are presented in Table I. In addition to the conditions stipulated in identifying subjects the final groups were comparable in terms of race and sex. A simple randomized analysis of variance of the mental age score of the three groups yielded an F ratio of only .056 indicating that the small differences noted in average mental age were not significant.

TABLE I

SUBJECT REFERENCE DATA

Variable	Gifted	EMR	TMR
IQ			
$\bar{X}$	132.14	63.57	41.76
SD	10.25	9.22	5.48
CA*			
$\bar{X}$	61.00	128.00	189.52
SD	12.57	35.90	28.93
MA*			
$\bar{X}$	81.28	79.62	79.52
SD	21.28	18.25	17.46

*reported in months

A profile of MA, LA, and subtest scores is presented in Figure I. Though the profiles of the three groups overlap at several points there is a clear trend suggesting that higher IQ subjects score higher on the test even when matched on MA. This difference was further confined by analysis of variance (see Table II) of total LA scores of the three groups. This indicates that a difference in language ability exists at different IQ levels independent of MA. These results would tend to support H2, though a second analysis has a more direct bearing. As can be seen in Figure I all groups obtained an average total LA scores lower than their average MA scores which is contrary to H2. However, it is apparent that the magnitude of the difference between MA and LA increases as IQ decreases. The analysis reported in Table III shows that the differences in difference scores were significant (p .005). This suggests that the logic behind the hypothesis is valid. It may be that the norms on the ITPA are not completely appropriate for children in middle Tennessee which could account for all groups obtaining LA scores below their MA.

Table IV presents the results of the Type I analysis of subtest scores for the three groups. The overall significant interaction indicates the profiles of the three groups are different. Appropriate sub-analyses indicated that gifted children scored significantly higher on the auditory-vocal automatic test and both association subtest than on all other tests except auditory decoding. It is also apparent from Figure I that in all cases where comparison of channels is possible, the differences are in the expected directions, auditory and vocal higher than visual and motor. In the analysis of EMR scores only the visual decoding subtest was significantly superior but the difference in the association subtest was also in the hypothesized direction. Only one test, visual-motor association, was significantly superior among TMR subjects, and encoding showed a strong trend toward higher scores being obtained on the motor than the vocal test. Analysis of differences on each subtest also yields some suggestive information. Higher IQ subtests scored

FIGURE I

MA, LA, and ITPA Subtest Scores of Three IQ Groups

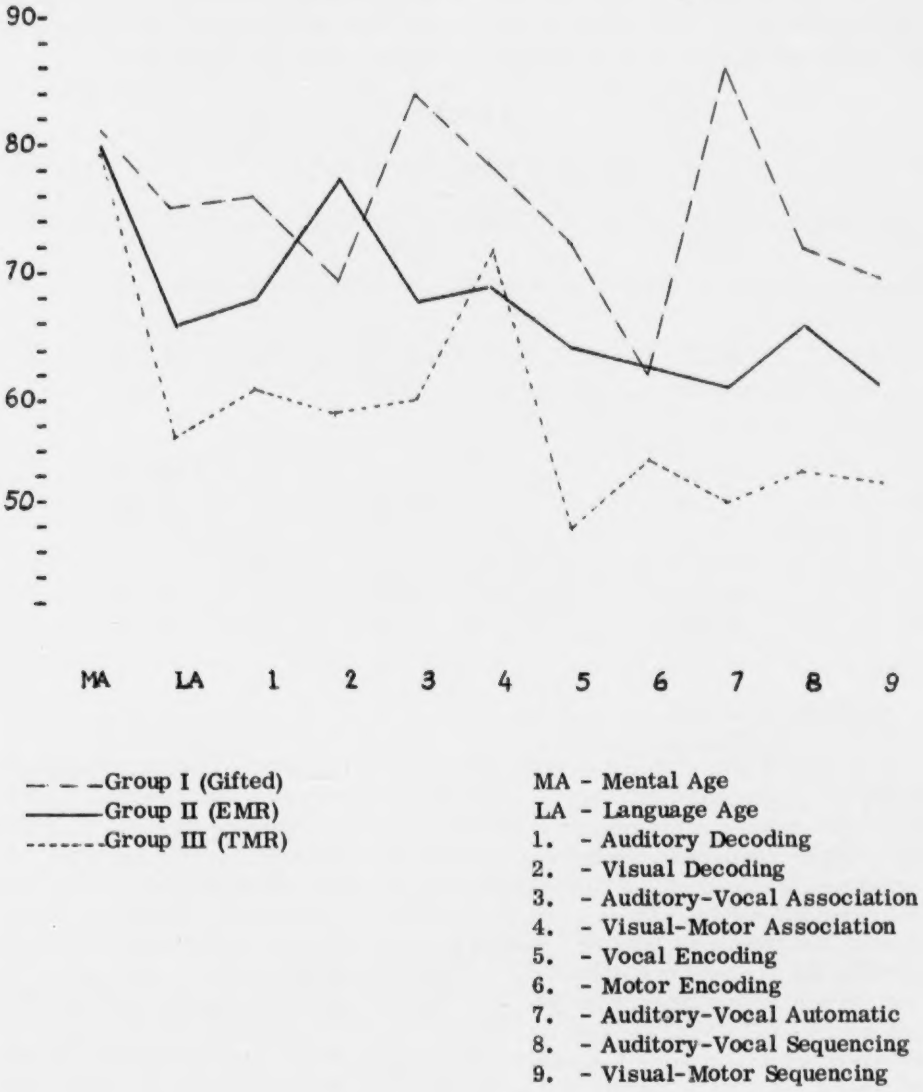

TABLE II

Results of Analysis of Variance of Total Language Age

Source of Variance	df	x^2	s^2	F	p
Between Groups	2	3,351	1675.5	6.66	.005
Within Groups	60	15,105	251.75		
Total	62	18.456			

TABLE III

Results of Analysis of Variance of MA-LA Discrepancies

Source of Variance	df	x^2	s^2	F	p
Between Groups	2	2722	1361	24.98	.005
Within Groups	60	3269	54.48		
Total	62	5991			

TABLE IV

Results of Analysis of Variance of Groups by Subtests

Source of Variance	df	x^2	s^2	F	p
Subjects (b)	62	148,579	2,396		
Groups	2	24,496	12,248		
error (b)	60	124,083	2,068		
Subjects (w)	504	119.296	237		
Subtests	8	10,222	1,278		
Groups X Subtests	16	10.844	678	3.307	.005
error (w)	480	98,230	205		
Total	566	267,875			

significantly higher on Auditory-Vocal Association, Auditory-Vocal Automatic, Auditory-Vocal Sequencing, and Vocal Encoding, all tests utilizing auditory and/or vocal channels. While these results do not completely confirm hypotheses 1 and 3, they generally support the position from which the hypotheses were developed. The data suggest essentially no support for the fourth hypothesis.

Discussion

The only finding of this investigation which appears fairly unequivocal was that a deficit in language function is seen in retardates independent of mental age, which supports a widely held viewpoint and coincides with results of most previous research. Certainly the volume of data on this subject suggests the need for increasing our training efforts in the area of language with retardates. Though the data from this research is not clear cut beyond this first point, it is suggestive in several respects. Retardates seem somewhat better able to function in terms of visual stimuli and motor responses than through other channels of communication. Increased utilization of these channels in the education of retardates would appear worthy of further research. It also seems reasonable to investigate the value of more verbal skills by working from visual-motor language to auditory-vocal language. In view of the relatively severe deficit observed in relation to the encoding abilities of retardates it would also seem appropriate to give particular emphasis to development in this area. Another point worthy of mention, though it does not show up in the statistical analyses, is the consistency of the profiles, particularly among the retarded subjects. Inspection of individual profiles would reveal striking similarity in about 8 of every 10 profiles. This might be taken as indicating that a group language development program may be quite appropriate for linguistic training of retardates. This would be more economical than individual programs such as those which have been studied at the University of Illinois, and which also present the possibility of developing sets of material and lesson plans that could be made available commercially. These should prove useful for working with most retarded children.

Several implications for further research can also be based on the results of this study. First, the strong tendencies shown in the data to support hypotheses without actually confirming them suggests the need for further investigation following the same line as the present study. In addition, inspection of the data suggests that evaluation of differential language abilities among groups of subjects of varying ability but matched on overall language age might also increase our understanding of language ability in the reatrded. Finally, and most challenging, it seems vital to develop programs of language instruction based on the findings of this and previous studies, to evaluate the use of these programs with retarded children, and to investigate the extent to which instruction in the area of language effects functioning in other areas.

Summary

This study represents an attempt to investigate differences in profiles of language abilities among groups of children of different intellectual levels. Results indicate that children at different intellectual levels do show reliable differences in their pattern of scoring on the Illinois Test of Psycholinguistic Abilities, but the exact nature and meaning of these differences is not entirely clear. The most important implication of the study appears to be in establishing a tentative basis for development of language training programs for retarded children.

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LANGUAGE PROFILES OF MENTALLY RETARDED CHILDREN

Max W. Mueller

An apology is in order in introducing this paper. The data reported here have been collected from a number of sources, primarily previous research studies and clinical test protocols, and meet virtually none of the assumptions necessary for statistical analysis. Due to this manner of obtaining data, the groups were found to differ markedly in number, distribution of sexes, and comparability in several other dimensions. In addition, the scores of the groups exhibited a considerable heterogeneity of variance, and no more than a vague tendency to be normally distributed. Though adjustments could have been made to account for some of these many differences, such adjustments would have been quite wasteful of the collected data, so statistical analysis was rejected in favor of a subjective, graphical evaluation of the test profiles of the various groups.

The purpose of this paper is to investigate the patterns of language ability demonstrated by mentally retarded children of various levels on the Illinois Test of Psycholinguistic Abilities (ITPA) (Kirk & McCarthy, 1961). Several questions can be developed within this general purpose. First, are the mentally retarded a homogeneous group in terms of their patterns of strengths and weaknesses in language functioning as measured by the ITPA? Previous research (Smith, 1962; Mueller & Weaver, in press; Semmel & Mueller, 1963; Weaver, 1964; Mueller, 1964) has suggested that a rather general pattern emerges in this regard. This pattern is one of relative strength on visual and motor tests as compared with auditory and vocal tests, greatest variability among tests at the representational level, and severe deficiencies in those functions measured by the encoding and automatic tests. Second, what is the relationship between language age and mental age at different intellectual levels? Again the previously cited research suggests that retardates tend to obtain language age scores below their mental age scores as derived from the Stanford-Binet. Third, how do these observations fit into the currently used classification schemes for retarded children? Fourth, can inferences for the training of retarded children be drawn from their patterns of scores on the ITPA? In this context it seems particularly relevant to evaluate the extent to which language profiles are similar or different at various IQ levels.

Since the majority of the protocols examined in this study were drawn from the data of the studies referred to previously, there was little question as to whether some of the same general patterns would emerge. The extension of this work in the present paper is to evaluate these patterns in terms of different IQ levels. This aspect was not considered in most of the previous work.

Method

ITPA test protocols from clinical testing and several previous research studies (Smith, 1962; Mueller & Smith, '964; Mueller & Weaver, in press; Weaver, 1964; Mueller, 1964) were collected and divided according to the IQ level of the subject. Two methods were utilized in constituting these groups: the AAMD classification system, and blocks of ten-point range in IQ. All data was analyzed by both methods. Reference data on the resulting groups is presented in Table I. Since the scores of the resulting groups did not meet many of the assumptions underlying the techniques of statistical analysis, a visual analysis of the data was attempted. Profiles based on the average score of each group on mental age, language age, and the nine subtest scores of the ITPA were drawn graphically. Observations made in this paper are based on the direct visual inspection of the resulting graphs, and on the comparison of the graphs using overlays.

Results and Discussion

In regard to the first question concerning the patterns of strengths and weaknesses, the outstanding feature of the data was the striking similarity of the group profiles at all levels of retardation. The generally higher scores obtained on tests utilizing the visual and motor channels were observed in virtually all cases where such comparisons could be made. However, it was noted that there was some tendency for differences between visual-motor and auditory-vocal scores to increase as the IQ decreased. On one pair of tests, encoding, subjects at the highest levels of intelligence were superior on the vocal scale, while at lower levels of intelligence, subjects obtained higher scores on the motor scale. This is best illustrated by the profiles constructed on the basis of the AAMD classifications; Vocal Encoding slightly superior to Motor Encoding at Level I, Motor Encoding slightly superior to Vocal Encoding at Level II, and Motor Encoding considerably superior to Vocal Encoding at Level III. The same general pattern can be observed in the data arranged by 10 point blocks in IQ. As had been suggested by earlier research, the variability among tests at the representational level tended to be greater than among tests at the automatic-sequential level. This was particularly true among the groups exhibiting more severe degrees of mental retardation. The final aspect of the question regarding the analysis of language profiles was related to the deficit noted in connection with both tests of encoding and the automatic test. The trend in these data again suggests that this observation holds true for all levels of retardation, but that the deficit becomes more pronounced in groups of lower IQ.

Table I

Reference Data

Group		CA*	MA*	IQ
Level I				
IQ 68-83	$\bar{X}$	103	77	74
	SD	16.4	12.3	3.3
Level II				
IQ 52-67	$\bar{X}$	117	69	55
	SD	27.9	13.0	4.7
Level III				
IQ 36-51	$\bar{X}$	179	76	43
	SD	33.6	14.6	4.3
Level IV				
IQ 20-35	$\bar{X}$	168	52	31
	SD	28.1	12.5	3.7
Group A				
IQ 80-89	$\bar{X}$	63	54	85
	SD	2.9	2.8	2.5
Group B				
IQ 70-79	$\bar{X}$	107	80	74
	SD	16.1	12.4	2.8
Group C				
IQ 60-69	$\bar{X}$	106	69	65
	SD	13.3	8.0	1.4
Group D				
IQ 50-59	$\bar{X}$	122	68	57
	SD	30.8	14.4	2.4
Group E				
IQ 40-49	$\bar{X}$	178	80	45
	SD	30.7	14.0	2.8
Group F				
IQ 30-39	$\bar{X}$	173	60	35
	SD	34.9	13.9	2.7

* Reported in months.

A second question was presented regarding the observation that language age tends to fall below mental age among retarded groups. The present study further confirms this observation, and in addition, sheds some light on the effect of IQ level on this phenomenon. It appears from this study that there is an inverse relationship between this discrepancy and the absolute value of the IQ. However, this does not appear to be a linear relationship since it appears that the discrepancy between MA and LA tends to remain about the same in Levels I and II, or in all groups with average IQs above 50, and the size of the discrepancy increases markedly among retardates of lower levels.

It is possible to make several inferences regarding systems of classification of retardates in view of the data in this study. Perhaps the most directly related to school practices today is an evaluation of the language patterns of those groups which fall within the range of intelligence called educable in our schools, compared with those of groups falling within the trainable classification. In terms of language abilities as measured by the ITPA, there does appear to be a fairly sharp division between these two groups. Retardates with IQs above 50 exhibit fairly homogeneous language profiles with about the same areas of strength and weakness, and with discrepancies between tests in various areas having the same magnitude. Children with IQs below 50 tend to show relatively greater overall deficit when matched on MA, to show greater differences between their abilities as measured through different channels, and to show relatively greater weakness in expressive language as measured by the encoding subtests. The implication here would seem to be that the educational classification system utilizing a dividing point of about 50 IQ is meaningful in terms of the psycholinguistic functioning of retarded children. Moreover, it suggests that 50 IQ is a realistic dividing point, a view that has been somewhat in dispute in recent years.

Several inferences relating to the education and training of retarded children can also be drawn from this work. First, in view of the similarity of the profiles of all retarded groups, it would appear that general planning for the language development of the retarded children could be carried out without regard to the level of retardation. This is consistent with the work of Smith (1962) and Blue (1963) who found that the effects of a language development program were similar in educable and trainable groups. The importance of this possibility is that it can and should lead to considerable economy in terms of research activities, program development, teacher training, and many other areas relevant to working with retarded children. In addition it suggests that it may be entirely appropriate to develop fairly specific curricula and materials in the area of language development which should be applicable to retardates at all levels. Based on the present study, it would appear that such a program should emphasize the development of auditory and vocal skills, perhaps building on the relatively unimpaired visual and motor skills to do so, and most important to concentrate on the development of expressive language. Since the differences observed in the group profiles at various levels of IQ tend to be primarily in the magnitude of specific language deficits, it may be that the primary concern in differentiating programs for children of varying severity of retardation will simply involve the amount of time spent and the variety of materials needed to achieve certain goals which may be quite similar for all IQ levels.

Summary

ITPA protocols from a number of previous research studies and other sources were categorized as to the IQ level of the subject and submitted to a subjective, graphical analysis. Results indicated considerable similarity among the linguistic patterns of all groups regardless of IQ level, though there was a tendency for specific language deficits to become relatively more severe as IQ decreased. Implications for the development of language training programs for the retarded were considered.

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THE GIFTED

CURRICULUM DEVELOPMENT FOR GIFTED ELEMENTARY STUDENTS

Joseph Buzzelli

With the widespread recognition that equal educational opportunity does not necessarily mean identical educational opportunity, slow-learner classes, ungraded classes, physically and visually handicapped classes and other such classes have been established in an attempt to provide for individual differences among pupils. We believe that each child is entitled to the best educational opportunities that can be given, yet as we progress toward this ideal, new problems arise.

To meet the problem of providing for individual differences, pupils of superior potential must be permitted to develop their abilities and talents and to improve their skills. Gaining widespread acceptance of the need to make provision for the child of superior potential is difficult, however, because there are so many intangibles that cannot be easily evaluated and reduced to objective terms. Educational provision for children of superior ability must produce an atmosphere in which creativity, curiosity, initiative and imagination flourish. The ability to evaluate, to see relationships, to make judgments and to think critically is of a higher order than the acquisition of facts, but as improvement in this ability is difficult to achieve, so is it difficult to measure.

Purpose

It must be remembered that the high achievers are first of all children, and that they possess no characteristics different in kind from other children. The basic difference between the high achiever and an average achiever is one of degree only.

Paradoxically, gifted individuals have, at one and the same time, the potential for high achievement and leadership as well as the unwanted potential for becoming the greatest underachievers in school and in society. Like any other child, the gifted child has emotions and needs which can aid him in developing his high intellectual potential or stand in the way of his development. Conversely, intellectual agility can help a child satisfy his emotional needs or it can frustrate them. The job of those who work with high achievers is to help these bright youngsters make their intelligence an asset in the tremendous task of growing up.

Some investigations that have been carried out in this area have been of real significance, particularly those of Terman and Hollingworth. But still a vast number of our gifted children remain unidentified, and, of those who are discovered, few are dealt with so that their development will fulfill their promise.

Society must first decide whether it wants worthy leadership. If it does, there are many alternatives to be tried - raising the standards for the teaching profession in general, offering sequences in teaching the gifted so that special certificates may be earned, or development of curriculum that would lead to the establishment of special programs for high achieving students.

Meanwhile, as the gifted child waits in his classroom, often not recognized except by some of his peers, we continue to talk about "democracy." Certainly the cost of properly educating the gifted is high, but the cost of not educating them will be much higher.

Adaptation of School to High Achievers

It is generally conceded that the typical school curriculum does not offer sufficient challenge to the mentally superior child. Adaptations have included rapid advancement, enrichment, introduction of special units of work, and special classes. Frequently the procedure involves two or more of these plans as well as special equipment and modified methods of teaching.

Perhaps the most common way to deal with the high achieving child is to advance him rapidly from grade to grade by skipping, acceleration or both. Skipping implies that the child skips over the work of one grade, while acceleration means moving the child from one level of instruction to another only after he has mastered the work of the level from which he is moving. The method that most schools strive for is that of early identification, which permits the gifted child to complete both kindergarten and first grade in one year. Hopefully, the child will immediately be challenged by his first school experiences and thus the danger of boredom and careless work habits will be avoided.

The courses a child takes are, however, less important than the teacher he has. In any ungrouped classroom, a gifted child is almost certain to turn up sooner or later. What can the teacher, who is already overworked in providing for under-achieving children, do for the talented pupil? By offering the class a variety of problems - some calling for greater understanding and research than others - the teacher can appeal to the highly talented as well as to the less talented. By excusing the high achieving child from assignments on material he has already mastered, the teacher can free him for independent work. Given a good start on a special project, the talented child can usually carry on with only occasional help.

Early and accurate determination of a pupil's ability has advantages for everyone concerned. If, from the beginning of his education, teachers challenge the gifted child to do his best, he will learn good study habits and keep his interest in school. His teachers, knowing that he is bright, will watch to gauge the range of his abilities, help him explore his interests and talents and help him and his parents plan for his future education. If an unusual talent or a powerful interest appears early, there will be plenty of time to develop it.

Gifted children often have special problems with which they need help - problems such as non-acceptance by peers, conflicts with others, difficulties in retaining interests that are outside the norm, and pressures and demands by teachers and parents. The gifted also need assistance in educational and professional choices, and the reward of their fulfillment should spur counselors to thoughtful exertions.

The size of the district or school seems to have nothing to do with efforts to help gifted children. One of the smallest rural districts in Arizona has long-range planning for early entrance grouping and academic program.

Our civilization owes much to young people whose abilities and talents have developed early in life. Newton did his work on light and color before he was twenty. Orville Wright was a skilled teen-age mechanic when he built his first glider, and he and his brother achieved power flight in their early thirties. Madame Curie worked in her father's laboratory when she was in her teens and discovered radium when she was thirty-one. Marian Anderson was a concert singer at seventeen. Yehudi Menuhin made his debut with the San Francisco Symphony when he was seven and by the age of twenty-one was described as a "mature artist, in the first rank of violinists."

James B. Conant has stressed the need to identify bright pupils early. In his book, The Citadel of Learning, writing about our failure to educate more mathematicians and scientists, he says:

> "The difficulty is in no small part due to our failure to identify at a relatively young age those boys and girls who have more than the

> average talent for mathematics. If such pupils were identified (and tests for this purpose seem to be at hand) and then were stimulated to proceed relatively rapidly with their studies, a respectable fraction of the better colleges would have sufficient mathematical aptitude to tackle the physics and chemistry courses with both enthusiasm and success."

Planning for the gifted is not a fad. Even if there had been no cold war or post war shortage in areas of trained manpower, American schools would have had to face the problems of developing appropriate education for the varied needs of school populations, up-grading instruction, modernizing content and methodology, and guiding students into channels that will fill the need for creative specialists.

Identification

Undoubtedly the best method today for helping the gifted child is early identification and early entrance. Investigation has revealed that gifted children are above the average in personality development. They are seldom the eccentric misfits that traditional thoughts sometime picture them.

Because of his outstanding capacities and wide range of interest, the gifted individual is able to meet his environment at more points and with greater sensitivity than normal children can.

The evaluation of different kinds of school provisions for the gifted goes merrily on, ranging from the collection of testimonials on the value of foreign languages for fourth grades to the determination of statistical significances and differences in terms of outcomes, presumably achieved over relatively short periods of time.

We are at least one step removed from the antiquated and psychologically unjustified practice of putting off until the high school level the identification of the more capable students.

Penalizing the bright child hardly follows the advice we reserve for bridge - lead to strength. In an age of the picture window, the organization man, little leagues, tract houses, and motivational research, one cannot help but wonder whether it really is necessary to file human beings down to the smooth surfaces of mediocrity. Would it not be more desirable to take pride in the rough edges of intellectual and talent differences? Both at home and at school we reward conformity, and yet the greatest contributions in all societies come from creative pioneering individuals. Make a list of leading inventors, painters, statesmen, and scientists and see whether you can find a conformist among them.

We can refer to many leading reports and books in which we would find that gifted children possess:

- Superior ability in reasoning, generalizing, comprehending meanings, recognizing relationships, thinking logically, and dealing with abstractions.
- Ability to learn more rapidly and easily.
- Drive and desire to forge ahead and to explore new fields.
- Intellectual curiosity.
- Superior insight into problems.
- Skill in leadership.
- Wide vocabulary.
- Mental alertness.
- Capacity for sustained work.

Physically we note that the gifted possess:

- Body build slightly heavier and taller with a high ratio between weight and height maintained.
- Good health and nutrition.
- Maturity usually reached at an earlier median age.

The following social and emotional factors can also be observed:

- Superiority in desirable personality traits such as courtesy, obedience, cooperation, willingness to take suggestions, ability to get along with others, and a keen sense of humor.
- Common sense and power of self-criticism.
- Greater trustworthiness when confronted with temptation.
- Preference for older playmates of his own mental age.
- More imaginary playmates in the case of young gifted children.
- Preference for sedentary, quiet games when not stimulated to activity by others.

Giftedness in children is not easily recognized. Many attributes of giftedness never appear in any one child. A variety of procedures should be used to identify high achievers.

Sources for selection: Teacher's observations; achievement test results; intelligence test results; cumulative records; sociograms; interest inventories; parent-teacher conferences.

Criteria for identification: Continuous diagnosis of child's ability; repeated testing and appraisal; appraisal of talent through school marks, rating scales, personality tests, anecdotal records; appraisals of non-intellectual factors through motivation, interests, emotional maturity, social growth, health; observations for identified characteristics such as powers of concentration, independent thinking, curiosity, leadership, ability to talk and present organized ideas, varied interests.

With the identification of gifted children, the following questions become important in developing a program for high achieving students:

How does our school provide for its high achieving children?

- How does the able student learn?
- What values can be expected from working and studying the gifted?
- How should the testing program be used?
- How can our curriculum be better organized to meet these needs?
- What can be done through special grouping?
- What kind of staff do we have for working with the gifted?

These, and many more, are the questions and problems to be discussed and worked out to provide for high achieving children.

Following discussion sessions and pre-planning in-service meetings, methods and procedures should be set up to provide for the high achievers. We must ask:

- Is this to be a special project?
- Is curriculum presentation to be varied?
- Are physical arrangements adequate?
- Will there be re-examination of teaching materials and methods?
- Is a method of selecting suitable students set?

Other methods should be discussed to find procedures that will give the program and curriculum a strong program for high achievers.

- -Allowing children to enter kindergarten or first grade earlier.
- -Ungraded units — progressing through a unit according to his ability.
- -Advancing from one grade to a higher one.
- -Taking extra subjects.
- -Longer school day, or year.
- -Summer school.
- -Enrichment classes.

Basic steps should be taken to give students of high ability an opportunity to gain knowledge and develop skills and habits, appreciation and attitudes.

Steps for Gaining Knowledge

I. Suitable worthwhile work to be done.
  A. Suitable for pupil's needs, interest and ability.
  B. Worthwhile from standpoint of education objectives.

II. Recognizing a problem.
  A. Difficulty encountered that blocks the carrying on of activity.
  B. Should be a question that needs answering.
  C. Or a job that needs to be done.

III. Problems analyzed or clearly defined.
  A. Learner should know exactly what is the difficulty to be overcome.
  B. Learner should know what is required to solve a problem.

IV. Getting suggested solutions.

V. Planning a course of action in keeping suggested solutions.

VI. Carrying out a plan.
  A. Collecting information.
  B. Organizing and analyzing information collected.

VII. Drawing conclusions, inferences or generalizations.
  A. If learning is to take place, the teacher must see to it that the reported information clearly and definitely gives the entire group a solution to the problem. For the child, this is real work.

VIII. Verification and evaluation of solution in light of problems.

IX. Applying generalization to other problems.
  A. This method is sometimes referred to as the Scientific method, and sometimes the Thinking or Reasoning process.
  B. Three prerequisites necessary to develop selective thinking are:
    1. The work should be worthwhile and suitable from standpoint of the pupil's needs, interest and ability.
    2. Learner should encounter a difficulty for which he has no ready or adequate solution.
    3. Learner should appreciate the value and importance of doing the work and want to solve the problem for reasons of his own.

Steps in Gaining Appreciation and Attitudes

I. Learner expression of his appreciation.

   A. Must be free and spontaneous.
   B. Perfection of production not necessary — frequently not desirable.
   C. Teacher must set the stage for expression, give opportunity and encourage.
   D. Teacher attitude of expectation and approval of pupil effort most important.

II. Evaluation of experience.
   A. Repeated experiences involving appreciation develop into an attitude. This leads the high achiever to sustain procedural methods for gaining knowledge to develop skills and habits and to gain appreciation and additional attitudes, thus:
      - He is challenged.
      - He is practically occupied.
      - He is helping himself, his class, his school.

Conclusion

Every child should have the opportunity to develop his abilities to the highest potential. This nation needs trained, high level manpower. The education of the gifted now has a new urgency, both because of the needs of society and because many schools and colleges have tended to neglect the full education of the gifted. In giving special attention to educating the gifted, we propose no neglect of the education of less gifted, but rather an upgrading in the labor force of tomorrow at the highest levels, where such upgrading is most critically needed and has been most general neglected. Hope for our future lies in identifying and educating those whose high talents may be lost to society if no special plans or efforts are made to give them adequate and challenging educational experiences. At present, only about half of our nation's youth who possess college ability go to college. Young people of high ability who leave school early, who do not go to college, or who drop out of college prematurely represent America's most critical waste of manpower resources.

Special educational provision for the gifted is often charged with being undemocratic. When this view is based on the assumption that any man is as able as another, it is based on fallacy and should be exposed as such. It is more important to recognize the principle of respect for personality by giving each individual opportunity commensurate with his personal abilities.

Providing appropriate educational opportunities for the gifted must not be simply a matter of finding classrooms, equipment and good teachers. It must involve a reappraisal of the educational program itself and will best be accomplished where teachers and school officers have a strong desire to search for talent and to create an environment favorable to the full development of that talent.

Educational programs and guidance services in the elementary school should be made much more effective in challenging the abilities of gifted children and youth and in motivating them to seek advanced education.

Gifted pupils should be identified early and given opportunities which will challenge their powers and develop their talents to the fullest. They should be motivated to be genuine achievers, imbued with a sense of social responsibility.

We must remember that bright and gifted children are, after all, children, subject to the frailties of childhood. As children, they lack knowledge, experience, and judgment, physical and social maturity. Give them proper care at home and skilled teaching in school and they will develop faster than other children and eventually surpass their parents and teachers in knowledge and achievement. But attaining full development is a long process for even the most gifted child. Like your other pupils, the gifted children need affection and support. Give them these and they will be grateful.

WHAT STATE DEPARTMENTS OF EDUCATION CAN DO TO ESTABLISH AND TO IMPROVE PROGRAMS FOR GIFTED CHILDREN AND YOUTH

Paul D. Plowman

State action is a vital force in promoting suitable programs for gifted children and youth. This is apparent in research, in demonstration programs, in publications, and in pupil participation. In California, alone, pupil participation rose 76% — from 38,705 to 68,237 pupils — from the 1961-62 to the end of the 1962-63 school year.

Experience to date suggests what state departments of education can do to establish and to improve programs for gifted children and youth.

Establishing Programs

State departments of education have a responsibility for encouraging careful identification, suitable programs, and comprehensive evaluation. This responsibility is clearly recognized in a 1962 policy statement adopted by the Council of Chief State School Officers.

A first step in establishing programs might be to study the policy statement, "Guidelines and Opportunities for Leadership in the Education of Gifted Children and Youth," and to delineate such functions as establishing valid criteria for the identification process; developing a statement of purposes uniquely suited to gifted children; procuring, developing, and disseminating materials; providing financial incentives for establishing and maintaining programs; promoting professional competence of school personnel; and encouraging lay understanding and support.

Ideas and data helpful in charting possible courses of action are to be found in guidelines, manuals for program development, basic professional books on gifted child education, research, and descriptive material developed by other states. While reviewing these materials, it would be wise to clarify the meaning of such concepts and principles as: equal educational opportunity; maximum development of individuals; and special provisions for all children with special learning needs. Other concepts which may need to be assessed are: motivation; creativity; flexibility; stability; sensitivity; and achievement. Crucial, too, would be understanding of administrative provisions involved in differential programing; flexible scheduling; enrichment; acceleration; independent study; and grouping.

Once agreement is reached that special programs for the gifted are consistent with basic principles of American education and of American democracy, and that they are needed, consideration can be given to (1) formulating and adopting identification procedures; (2) establishing the basis for financing; (3) organizing pilot programs, workshops, and teacher training; and (4) preparing guidelines. Statewide lay and departmental advisory committees might ascertain what is currently being done for bright children, how to evaluate the effectiveness of different programs, and what excess costs might be anticipated for various types of programs.

At some point it would seem advisable to observe programs for gifted children and demonstration programs in other states. Helpful, too, would be the consultant service of the Talent Development Section, U. S. Office of Education and suggestions from members of the Council of State Directors of Programs for the Gifted.

Before entering the quasi-political phase of establishment, decisions need to be made on:

1. The locus of a proposed full-time consultant and supervisory service.
2. The population to receive special provisions (upper two percent; five

percent; ten percent, etc.)

3. Appropriate terminology.
4. What might constitute approvable programs.
5. Extent and type of financial support.

Regarding the locus of supervisory and consultative service, it might be advisable to refer to a recommendation made by the directors of state programs at a conference in April, 1962 in Washington, D. C., called by the U. S. Commissioner of Education.

> It was recommended that Chief State School Officers:
>
> 1. Encourage States to provide full-time State department of education directors of programs for gifted children. One of the functions of such an office should be to stimulate the development and improvement of local educational programs for gifted children.
> 2. Encourage the establishment of the office of the State director of programs for the gifted as a line and staff position in the total organizational structure in such a manner as to be in a position to use the resources of curriculum development and instruction in elementary, secondary, and higher education; of special education; of research; of guidance services; of teacher education; and of other pertinent departmental functions.

Another step in establishing programs is that of mustering political support. This usually takes the form of supplying friendly legislators with information.

Legislative backing, particularly by persons on the Education and Finance Committee is of course crucial in such matters as conducting a state study; carrying on pilot programs; and securing money to finance programs. Support of the chief state executive in these matters might also do much to establish programs.

Generally speaking, one would hope to receive from the governor, public statements of need. The Governor of the State of Illinois and the Governor of North Carolina are to be especially commended for their direct involvement — appearance of the Governor of Illinois at regional meetings in Illinois and establishment of "The Governor's School" in North Carolina.

Somewhere in the political arena — in the chambers of the chief executive, in the offices of key legislators or in the State Department of Education — legislation is drafted. It may authorize and finance a survey of current practice or it may establish the level and type of financial support for a limited number of students or programs. It should also establish a full-time supervisory and consultant service.

After validation of some plans and materials — and after passage of supporting legislation, the newly established consultative service might develop guidelines for establishing and evaluating programs, a case study format, criteria for qualifying for state support, and a directory of programs currently in operation — giving type of program, grade level, school, and name of person directing the program.

Some experience in fostering programs for gifted children is desirable before state departments of education seek federal funds to (1) increase research effectiveness of persons who will become leaders in the field; (2) foster curriculum improvement; or (3) demonstrate validated programs. Funds for these purposes are available through the expanded system of grants under the Cooperative Research Program of the Office of Education, U. S. Department of Health, Education and Welfare. The California and Illinois demonstration programs were reported in the December, 1963 issue of the TAG Newsletter.

Improving Programs

A first step in improvement is to receive an impartial evaluation of state programs. One can get an appraisal of the quality of materials produced, attitudes of personnel, and increased participation of children and local school districts. Other factors might be (1) the extent to which teacher training programs have increasingly incorporated instruction on the characteristics, needs, desirable educational provisions, and methodology for teaching gifted children; and (2) the kinds of questions still asked by school and lay persons.

We have mentioned a number of important dimensions of evaluation as bases for improvement. More important than all these is what has happened to children. Evaluation methods and devices should:

1. Focus on changed behavior of individual boys and girls.
2. Employ processes and result in data useful:
   a. In improving instructional procedures
   b. In improving attitudes, insight, motivation, willingness, and ability of teachers, consultants and administrators with respect to educating mentally gifted minors.
   c. In interpreting the program to and in gaining the support of parents and the local community.

Evaluation methods and devices should in addition: (1) Reveal how the purposes of the program have been realized; (2) show the extent to which individuals and groups of pupils have achieved general and specific goals; and (3) be uniquely suited to assess creative thinking, critical thinking, and social leadership. Persons responsible for assessment will need to avoid pitfalls involved in:

a. Matching control and experimental groups of children on the basis of IQ alone.
b. Judging effectiveness of a program solely in terms of academic achievement.
c. Limiting evaluation to garnering the opinions of pupils, teachers, and parents. (Plowman, 1962)

Essential is an assessment of qualitative aspects of human behavior as well as of the extent of knowledge and competency in intellectual skills. To do this, and to get the impartiality desired, we might employ outside evaluation teams consisting of school psychologists or psychometrists — or consisting of a school psychologist, a curriculum consultant, and a school administrator.

The searching light of inquiry must also rest on the State Department of Education itself. Does the organization of divisions, departments, and bureaus hinder or facilitate establishing and improving programs for gifted children and youth? Might there be some way of coordinating special knowledge and skills of persons in separate bureaus of elementary education, secondary education, higher education, adult education, research and guidance services? Might a task-force approach be used to help local districts with problems of achieving curriculum continuity, in planning professional conferences, in developing materials, in suggesting model programs, and in evaluating the effectiveness of programs?

Basic to coordination and/or a task-force approach are philosophical agreement and communication. If conflicting principles guide separate administrative units within the State Department of Education, efforts to provide leadership may become mired in a morass of confusion and frustration.

To date, the state consultants in California have prepared guidelines, interpreted rules and regulations, developed a newsletter, participated in inservice education meetings, talked to professional groups, and performed other consultant services. A major achievement was planning a three and one-half year demonstration project: "A Demonstration Center with Differential Programing for Pupils in California in Grades One through Nine: Enrichment, Acceleration, Counseling, and Special Classes."

Looking to the future, we might envision (1) increased experimentation with composite programs and flexible scheduling and (2) increased application of the Guilford "Structure of Intellect," the Bloom "Taxonomy of Educational Objectives," and factors of creativity in curriculum planning and evaluation. Other promising developments might be (1) having state consultants in the education of the mentally gifted on research and development teams; (2) promoting continuity of learning experiences through cooperation of personnel from elementary, secondary, and higher education; and (3) assessing and modifying teacher training programs in order to prepare teachers who are qualified to work with gifted children and youth.

Three crucial tasks are:

1. To encourage development of top-level coordinators and consultants who can meet the many demands for special workshops and other forms of inservice education.
2. To work with parent groups interested in cross-referencing resources of school and community, providing transportation, and sponsoring inservice education programs, Saturday and summer programs, and community understanding.
3. To achieve a satisfactory level of financial support.

I have reviewed a number of things that State Departments of Education can do to establish and to improve programs:

1. State Departments of Education will be a vital force when the words "can do" are changed to "will do."
2. Their action will be successful when it improves the quality of leadership at county and local levels.
3. State Departments will be successful when they improve the quality of thinking and doing of gifted children and youth.

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EARLY ADMISSION TO SCHOOL FOR SELECTED CHILDREN

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The Problem

An arbitrarily determined age for school entry persists in spite of general recognition that marked variations in capacity for learning and in readiness for school attendance are discernible even in pre-school years. The legal minimum age of admission varies quite markedly from one state to another and from one country to another, but rarely from one child to another in a school district.

Exceptions to an arbitrary admission age may be found in only about one school district in five (NEA, 1958). Intellectually superior younger children who are ready for school in all respects may gain entrance, but usually not on the initiative of teachers and principals — those who should be most eager to get the children into the rich learning environment of the school. In most instances, parents must be aware that they can apply for consideration, be sufficiently interested to do so, and in many places they must furnish psychological and physical reports on the child along with the application.

Kindergarten and primary grades are expected to have very flexible programs to accommodate the wide-ranging aptitudes of children who come to school. Yet hardly any rules of the schools are more adamant than the arbitrary regulations about admission.

As Barney (1963b) has stated:

> This inflexibility in admission practices would not be so serious if schools were prepared to adopt programs geared to the needs of individual children at entry. But too often, at widely varying stages of readiness and overall readiness for academic learning, they are admitted to formal and inflexible programs. Perhaps we should be aiming at flexible admission to flexible programs, followed by flexible progression.

Efforts are apparent across the land to increase the age of admission (NEA, 1963). These efforts may be justified for some youngsters. But such a change, when it occurs, always deals a damaging blow to the younger *bright* children who have shown in the past that they can do well under the lower entry age, but who would now be barred from admission to school when they are ready. Both the "critical periods" hypothesis of Hebb (1949) and the "teachable moment" theory of Havighurst (1948) imply that training can be induced too late as well as too early; a very important issue in the education of the young, highly able child.

Early admission to school, either in kindergarten or first grade, is a special case of acceleration. In turn, acceleration at admission is a special case of variable age admission or flexible age admission.

Where the curriculum is substantially fixed within reasonable bounds as it is in kindergarten and the primary grades, and where the children who approach the curriculum are known to differ markedly in their capacity to learn the content of the curriculum, it is only reasonable that the children should be assessed individually and admitted when they have capacity to do the work. The result would be narrowing the lower end of the spread of readiness, thus bringing more children within reach of the teacher's range of effective teaching procedures.

The Background

Despite repeated research reports on the overwhelmingly favorable consequences of early admission to school for carefully selected children of gifted and superior intellectual levels, the practice is neither widely nor frequently used (Anderson, 1961). Although highly recommended (Worcester, 1956) as the most favorable form of acceleration, early admission to school seems neither generally well known nor well understood among practicing educators.

All common forms of school acceleration for mentally advanced children and youth have been investigated intensively, and favorable findings have been characteristic of such research with respect to both short- and long-range effects. Documentation on the matter is found from the reports of Terman (1947), as well as such recent summaries as those of Norris (1958), Fliegler and Bish (1959), and Birch and Reynolds (1963). Acceleration through early admission to school finds support in the studies described by Hobson (1948), Smith (1951), Monderer (1963), Birch (1954), Kazienko (1954), Mueller (1955), and Cutts and Moseley (1957). It is evident from this list that the practice of early admission to school for properly selected mentally advanced children has been researched extensively, and the evidence, including that from longitudinal studies extending into the college years, has demonstrated beneficial results, both personal, social and academic. A concise delineation of the research literature pertaining to the matter of early school admission for gifted children may be found in the recent monograph edited by Reynolds (1962). Early admission practices in four different kinds of school districts are also described in the Reynolds monograph. Altogether, this small publication provides the most comprehensive and accurate professional publicity that early entry has had.

Although Brookline, Massachusetts, introduced early admission 30 years ago and has since carried out follow-up studies, very little publicity has accompanied its procedure (Barney, 1963a). What publicity there is provides very little detailed information on such things as administrative procedures, costs, increased work loads for teachers, psychologists, and administrators in assessing, individually, the complete pre-school-year group, in identifying the gifted who are socially, physically, and emotionally ready for school, and in admitting them early. Nor has there been systematic assessment and recording of the reasons for community and professional opposition to such a modification of well-established traditional practice, nor of devices employed, where necessary, to modify negative attitudes (see Hobson, p. 22 in Reynolds, 1962).

The Demonstration

A field demonstration of early admission was initiated in Warren, Pennsylvania, to assure that the tested processes and the favorable results of early admission would be called to the attention of educational leaders, as well as the general public. It was felt that a widely publicized and carefully controlled demonstration should bring the highly significant research findings on early admission into much fuller use. As the project title indicates, it is a field demonstration of the effectiveness and feasibility of incorporating early entry into the regular admission practices of a complete school district.

The present demonstration, assisted by a grant from the U. S. Office of Education, Cooperative Research Branch, and by the Warren Schools and the Pennsylvania Department of Public Instruction, is designed for maximum visibility. A variety of communication channels are being employed to reach professional and lay persons.

The demonstration is taking place in Warren, Pennsylvania. This city of 15,000 population is in northwestern Pennsylvania, 145 miles from Pittsburgh and 45 miles from Erie. Socio-economically, Warren has a broad cross section of levels, with a tendency to be slightly above average. A well-established community and a county seat, it is the site of diversified industries including oil, steel fabrication, electrical equipment and clothing manufacturing. The operation of kindergartens has long been a part of the school system.

The official beginning of the project in the fall of 1961 was preceded by months of preparation. Several school districts were considered as possible sites. When the focus rested on Warren as the most likely spot, interviews with school officials, discussions with the members of the Board of Education, and deeper analysis of the population all were necessary. Such prior understandings and arrangements for facilities are much more an integral part of a demonstration than they might be in an experimental project. [illegible]or the latter, of course, the stage must be set. But for a demonstration, the setting [illegible] the stage itself may furnish data bearing directly on the evaluation of the project.

The early admission demonstration project began with a publicity campaign designed to inform the community of the purpose of the project and the procedures that would be adopted. One aim was to demonstrate that a typical school system can operate an early entry program. Therefore, the organization of the program was left to the local administration with the staff at the University of Pittsburgh acting as consultants.

The project has been extremely fortunate in having an enthusiastic administrative staff, eager to serve the individual children in their district.

Every effort has been made to conduct the demonstration within the already existing policies and practices of the Warren School System. The psychologists who examine the children have been in the employ of the school district on a part-time basis. The census data on families is an extension of the work already done by the home and school visitor. The selection of additional group tests for kindergarten and first grade is made in the existing framework of the district's committee on testing programs. This approach seems essential if the demonstration is to achieve its goals, for when external support is concluded it should be possible for the demonstrating school district to incorporate the project into its normal on-going activities. Indeed, it has already begun to do so.

Selection of Children The home and school visitor, using his pre-school survey results, contacted parents of all children in the age group due to be admitted to kindergarten in September of 1963. He then invited these parents to have their children examined by a school psychologist as part of the early entry survey. Of the 257 children listed in the census, all but 28 were brought by their parents for examination. Follow-up visits by the home and school visitor showed that some of these 28 families had left the district, some were disinterested, and some felt their child would not qualify and so saw no point in the examination. In the first year, then, the psychologists made a comprehensive individual assessment of 229 children.

The 1960 revision of the Stanford-Binet Scale and the Goodenough Draw-A-Man Test were administered to each child and ratings of behavior and emotional maturity were made by the psychologists during the test session. In addition to these test and rating scales, parents were asked to complete a comprehensive case history form while the child was with the psychologist and later acted as informants for the Vineland Social Maturity Scale. A check on height and weight was made and the parents were questioned regarding the child's health. Where any indication of below-par physical status existed, the family or school physician was consulted.

In all cases the results were discussed with the parents. In a few cases, where the parents reported problems of training or control, some limited counseling was undertaken. Where any deviancy of a more serious nature (e. g., moderate sensory defects) was detected, the parents were referred to appropriate specialists. Subsequent interviews with parents revealed that this final discussion, even where it merely reported on the normality of the child's development, was greatly appreciated.

The psychologists used multiple criteria, as recommended by Birch's (1954) study, and as further suggested from the findings of Davis, Lesser, French, and others (1960). The major benchmarks are:

1. Individual intelligence quotients of approximately 130 or higher, using standard score IQ's from the Pinneau Revised IQ Tables (Terman and Merrill, 1960).

2. Social maturity approximately one year or more above the standard, based on the Vineland Social Maturity Scale.

3. Sound and well-developed personality, as judged by the examining psychologist from observations of the child's parents. Rating scales have been devised for use in the project in this connection.

4. Physical characteristics not likely to limit the child. Height and weight measurements were made and compared with standard tables for size measurements. A statement regarding the child's general health was obtained from the parents.

On the basis of these methods of assessment, the psychologists listed 37 children as possible candidates for early admission in the fall of 1962.

The 37 children tentatively selected by the psychologists were observed by experienced kindergarten teachers at a visit to a session in the neighborhood kindergarten. These were regular sessions and only one prospective early entrant attended at a time. If the teacher felt that the visit did not provide a sufficient sample of the child's behavior, opportunity was given for a return visit. Kindergarten teacher observations, along with those of the psychologist, were then considered by a committee appointed by the Superintendent of Schools. The primary criterion which the committee used to arrive at a final recommendation was in all cases overall maturity or readiness (social, emotional, physical, and intellectual) to benefit from the type of program to which they would be admitted.

The committee made 26 firm recommendations to the parents. This represents 10% of the total population contacted in the age range 3-8 to 4-8 years (as of September, 1962) and 11.6% of the number actually examined. The ultimate decision on early entry rested with the parents. Nineteen chose to send their children early, as recommended by the school committee.

Admission ages ranged from 3-11 to 4-8 years; a third were within 2 months of the minimum age for entry. Had they not been admitted early these children would have entered kindergarten in September of 1963 at the regular chronological age, but with mental ages ranging from 7-2 to 9-0 years, some one to three years beyond the mental age usually designated by American educators as indicating the stage of "readiness" for reading instruction, and with social and emotional maturity similarly advanced! How many American kindergartens would have been "ready" instructionally to match the "readiness" for instruction of those children?

Findings to Date The families of the 26 children who were recommended by the committee were interviewed to determine reasons for refusal or acceptance of the recommendation and the resource persons in the community they had consulted. Of the 7 who did not enter their child, one family accepted the recommendation but moved from town; another father accepted but the mother rejected, and, later, too late for entry to be effective, changed her mind; a third family agreed to early entry but in the week prior to the opening of school changed their minds after a pediatrician had advised them of the "adverse effect of social immaturity at the secondary school level." (Evidence clearly refuting this view is found in the studies of Hobson and others (Keys, 1938).) Eventual social difficulty was also the prime concern of the other parents who declined (all parents of boys). Among the parents of the 19 admitted (a higher percentage of them girls than boys), about half reported having decided to accept the recommendation if offered before they actually received the notive from the committee. They were strongly impressed by the thoroughness of the evaluation of readiness of their children made by the school personnel, and they respected and acted upon the advice they were given.

There had been considerable opposition to early entrance programs on the part of both professional and lay persons. Much of this has evidently been the result of attitudes fostered by limited and inaccurate information. Opinions have been voiced about the "dangers" of "pushing" children and of the "materialistic desire" to get them into and therefore out of school early, thereby depriving them of some of the years and joys of childhood. This is not a difficult thesis to counter, as early entry of properly selected children does not involve "pushing" the child. Adequate selection procedures using multiple criteria will insure that the "whole" child is ready for school experience. As for depriving him of the joys of childhood, there is anecdotal evidence from the Warren parents, as well as from other parts of the country, that young gifted children are frequently happier in a more stimulating environment of the kindergarten or grade one classes than in their own homes. The point really is that children who are not admitted to school when they are ready may be losing some of the joys of childhood, chief among which is successful accomplishment of tasks they are fully capable of doing.

The numbers are small and care needs to be exercised in making judments, but there is a suggestion of a parent education factor operating among the parents of the 19 children who were entered early. Among parents with less education a negative decision appears to have been simple, based on a combination of pride and their own lack of educational opportunity. On the other hand, among parents who were college graduates, some had perceived boredom, disinterest, and a need for a greater range of intellectual stimulus not apparently available in the home. Some noted that their children gravitated to older playmates. All reported that the school committee's advice was the soundest they were likely to get.

Nineteen early entrants were admitted to their respective neighborhood kindergartens in September of 1962, the classrooms they would have normally entered in September of 1963. Each of Warren's six kindergartens had at least one child in each morning and afternoon session. They were treated as any other kindergarteners.

Their progress has been carefully watched, though unobtrusively. For example, when additional testing is done, regular entrants are examined as well. Early entrants are not identified for visitors, names have not been revealed to the press, and picture story feature articles which would identify the children have not been permitted.

Not all of the 19 made perfect immediate adjustment to the school environment; nor did all of the regular entrants. The initial and continuing adjustment of a number of the regular entrants in each class has, in fact, been poorer than that of the children entered early. The results of reading readiness tests conducted near the end of the 1962-63 kindergarten year indicated that the regular entrant range in percentiles was 0 to 99+ while for early entrants it was 29 to 99, so that much of the same range of readiness was found in both groups.

Kindergarten teachers promoted all 19 of the early entrants to grade one.

Now in the first grade, the early entrants' teachers report that all but one are adjusting satisfactorily. The one exception is a child from a broken and emotionally unstable home environment, and that was known before early admission was recommended. Clinical analysis indicated that there could be no guarantee that deferring entry to school for a year would have eliminated such difficulties. In fact, the stabilizing effect of a daily kindergarten program may well have prevented more serious trouble had the child remained at home.

Height and weight measures were taken during the year by the school medical officers and the reports indicated that the younger group members were not generally the shortest nor lightest in their classes. In addition, the younger ones were not distinguishable by visitors to the classes.

In general, first grade teachers report that satisfactory or better academic progress is being made by these children at the present time.

To date, sociometric ratings indicate that the early entrants were chosen equally or slightly more often as companions for activities than were regular entrants. The only firm statement one can make about these observations is that the younger children were certainly not outsiders in group activities. A more thorough program of sociometric assessment is planned.

Re-examination by different psychologists at the end of the 1962-63 school year revealed the mean Stanford-Binet IQ of the early entrant group to be stable; the mean difference was less than 1/2 of one IQ point from the original pre-school testing (i.e., from an original group mean of 140 to a mean of 139.5 one year later).

An attempt was made part way through the school year to assess the teachers' attitudes and changes of attitudes toward the early admission project. A 77.5% response indicated that the elementary school group was initially the least favorably inclined of the three groups (elementary, junior high, and senior high), but that they made the greatest change in a favorable direction during the nine-month period.

Another highly relevant area of evaluation consists of measures of the impact of the practice of early admission on the school system in terms of such factors as additional costs for instructional and ancillary services, changes in work loads of teachers and supervisors, participation of parents, changes in attitudes toward early admission on the part of educators, related professional workers, parents, and the total community, and modifications in the policies and practices of the school system as consequences of the field demonstration. Some data already collected in the latter area suggest that significant increases are required in the amount of time spent in interpreting the school's admission policies and practices, both to the general public and to the teachers themselves.

One other interesting sidelight bears on the work of the psychologists. Typically, a school or clinical psychologist sees children who have problems or who are making trouble. The usual role of the psychologist is to react in an analytical and diagnostic and possible therapeutic way to a complaint. In this case the psychologists had to reorient themselves considerably. Most of the children they saw were normal and healthy, and the psychologists often were at a loss as to what to say to parents or teachers about them.

Because almost all of the children in the community are being examined by psychologists a year or more before they would ordinarily go to school, psychologically and educationally significant attributes of many pre-school children (in addition to the intellectually superior) are being identified. This, of course, is extremely valuable information for families, physicians, and for the school authorities.

The second wave of early admitted children have now begun kindergarten. During the school year 1962-63 the school psychologists examined 220 children whom the census indicated would be eligible for entrance to kindergarten in September, 1964. Following the procedures outlined above, 30 children received favorable recommendations from the psychologists. Of this group, 25 visited kindergarten, and the selection committee invited 16 children to enroll in school this year. The parents of 11 of these 16 children accepted the recommendation for early admission. After approximately one month of school experience, none of these children seemed to be experiencing undue problems of adjustment according to their kindergarten teachers.

The demonstrators are particularly pleased with the fact that, although the originally intended duration of the demonstration project was two years, the Warren School Board has decided to continue the practice. This action by the Board of Education is probably the greatest single piece of evidence that the early admission project in Warren is rapidly accelerating toward successful fruition. Another manifestation of the impact of disseminated knowledge regarding the Warren project has been the interest and awareness shown by certain states and other school districts. As a result, there are possibilities of initiating other early admission programs.

In summary, this project is in that unique group of activities called "field demonstrations". It starts from a position firmly grounded in research and it translates the research findings of operational terms. In doing so, it applies established investigative techniques, particularly planned data collection and analysis, tight control of processes, systematic observation, and thoughtful reporting of consequences and outcome.

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THE GOVERNOR'S SCHOOL OF NORTH CAROLINA

A Case Study in Curricular Designing for Gifted Secondary School Students

Virgil S. Ward

The Governor's School of North Carolina (GSNC) is an eight-weeks residential summer program for gifted secondary school students selected from public and private schools across the state. The idea for the School originated in the office of the Governor of North Carolina as one of several advances in education currently in progress there. Financial support for the three-year project period (1963, '64, and '65) is being provided by the Carnegie Corporation of New York, and by businesses and foundations in Winston-Salem, North Carolina. The program is under the authority of the State Board of Education, a special nine-man Board of Governors, with an executive committee and and administrative staff being responsible directly for the establishment and conduct of the School.

Four hundred boys and girls from the rising junior and senior classes of their respective local schools are to be accommodated in the program each summer. The School has been established in residence at Salem College in Winston-Salem. All the facilities of the College and of Salem Academy (secondary) are made available. Tuition, room, board, instructional supplies and books are furnished free, travel and personal expenses only devolving upon the students themselves.

The School is devoid of the usual requirements for local school programs. The external motivation of school marks in the usual sense is confidently removed. Unit credit is not provided, and accelerated progress through the grades is not intended. The curriculum is designed to supplement, not to supplant, the offerings of the local school. Rather than do what increasing numbers of good schools are doing for the gifted within the framework of established curricula and procedures, the Governor's School is deliberately exploratory and experimental. The intent is to take advantage of imaginative educational thought and promising frontier practices for bright and talented youngsters everywhere.

The curriculum is comprehensive, ranging across the spectrum of both academic disciplines and the fine and performing arts. There is an attempt further to utilize the incidental hours between and after formally scheduled classes to provide additional enrichment through invited lectures, recitals, unusual cinema and the like. Supervised informal recreation is also provided for. The instructional staff is sought for excellence from among both high school and college ranks, some eleven states having been represented in the group that served during the initial summer of 1963. Special consultants and critics augment the efforts of the administrative and instructional staff.

The Challenge of the Curriculum

It requires an unusual situation like this, an opportunity and a dare to break with established practices, to make one realize how comfortable it is to have as a base line for operations certain concepts and practices that tradition and custom have given the weight virtually of "natural" properties. What does one do in fact, if he accepts an injunction against doing more of the same? What comprises distinctiveness by way of educational experience, purposeful differences which demonstrably relate to the nature and needs of gifted youth? If, by way of purpose, one rejects simple acceleration within established curricular sequences, what purposes do justify eight weeks of additional work within a calendar year? If, by way of disciplines to action, one suddenly is asked to shape an educational program which casts aside the motivational devices and requirements to which students have become thoroughly habituated, what appeals can be utilized and what moving forces carry student and staff through a sustained period of unusual and difficult work? The opportunity and the challenge of the GSNC involved all these inquiries and all these potentials for breaking with traditional curricular content and educational practices. Clearly, one is in an educator's Heaven amidst these freedoms and unusual opportunities; or is it the converse in fact, with the threat and the doubt that comes from abandoning an established regimen?

Apart from the release of restraints there are also positive criteria to be met in the search for appropriate developmental experience for fortunately exceptional youth. As a guide to the formulation of relevant and more nearly sufficient substance for school learning, substance which will take into account both the extraordinary present behavioral potential and the equally extraordinary anticipated adult social role, certain logical requirements must be postulated. Formally, we need to reverse the platitude "If it's good for the gifted, it's good for all," erecting the more defensible proposition that "If it's appropriate for the superior learner, it's improper and impossible for the generality of students." And on the conceptual side the observable differences between gifted adults and those comprising the main body of citizenry speak to and must be heard by the educator. Lifetime accomplishments of persons within the generality in the conduct of personal and vocational affairs tend in the main to maintain human culture as it is here and now. Deviant persons on the other hand — the scholars and scientists, architects and artists, and the statesmen and leaders in social movements within each generation — tend more nearly during their lifetime to change things as they are. And the contrasting roles of participation and maintenance as distinct from criticism and reconstruction contain fundamental implications. Education for the gifted becomes education for the further construction of knowledge and the reconstruction of affairs so as to improve upon the human condition. The content and instructional methodology which convey such developmental experience should be analogously as distinctive as is the objective itself; and the educational pattern as a whole should be analogously as distinguishable and distinctive as are the behavior patterns of the one group of people from the other.

One further overriding condition bearing on the Governor's School is a previously established state-wide "Program for the Exceptionally Talented." This program, established by legislative act provides financial resources and supervisory aid for local school systems as a means of encouraging the initiation and development of recognized or familiar types of program adaptations for the academically able student. Recent figures indicate that some 250 special classes, with this many teachers, and upwards of 10, 000 students are involved in this program, covering grades one through twelve. Eighty-three administrative units from a total of 171 participate.

The Governor's School, intending as it does to serve students who have or will in time be seeded upward within this base-level program, must transcend the usual kinds of curricular modification it is justifies its intrinsic reason for being. If through experimental efforts involving the deliberate application of imagination and reasoning in this unrestricted setting and with this exceptional clientele, the GSNC can formulate and test unaccustomed content and practice, the state supported provisions for the local school will be a ready-made point of entry for such of the new devices as prove worthy. In this manner, there exists hope that the regrettable time lag between what goes on nation-wide in scattered schools of unquestioned excellence, and what characterizes the typical local school can be substantially abridged.

Design and Implementation of the Curriculum

This "case study" is mainly concerned with how the persons responsible went about meeting the challenge just described. The executive committee and the administrative staff, named in the project proposal and charged with duties which were intended to be maintained throughout the project period, assumed responsibility for overall planning.

Some twelve categories of planning and action were quickly jotted down as a framework within which the necessary preparations might take place in an orderly manner. These included, over and beyond devising a curriculum, the establishment of official status with the governing agencies; agreement upon administrative and financial operational procedures; the selection of persons who would carry designated administrative responsibilities at the staff level; the development of a schedule for instructional staff and for students which would respect the general principles of a constructive educational work load; the procurement of facilities and equipment ranging from laboratory supplies and orchestral music to busses and off-campus facilities for staging dramatic and musical performances; the working out of principles and procedures for student selection; the screening and auditioning of art, dance and drama candidates in centers set up across the state; and the planning for anticipated visitation by both professional and lay persons. Research to cover all main lines of activity had to be thought about, and consideration given as well to the kinds of records and data which would need to be obtained from the beginning to make the final report comprehensive and serviceable.

These preparations were carried on as best as possible on borrowed time, each individual having only part time responsibility with the Governor's School, and this chiefly over and beyond the same duties held prior to the advent of the special assignment. The administrative staff participated with the executive committee in the discussion of policy, and following each policy decision, went into action doing the things necessary to carry out the plans. In this manner the program was hastily hammered into shape and all the material arrangements necessary for the opening of the first summer session were accomplished. The curriculum per se, which we are now ready to describe, involved the additional cooperation of the staff of instructors who were being assembled as part of the initial preparations.

Among the first decisions to be made were those involving the deployment of students and of staff into groups considered feasible for undertaking the special study. Certain near-arbitrary decisions were made at this level, to provide a framework within which more essential deliberations could take place. A class size of twenty was agreed upon; and each group of twenty students was to be formed on the basis of the aptitude and achievement which would lead to the selection of the student for the School. Eight curricular segments seized upon as satisfying the intention that the curriculum should be comprehensive in nature. Broad designations for these divisions were deliberately assigned, so that variations in particular offerings from session to session could take place within a durable, explicit structural framework that would keep curriculum in line with objective. Covering both the academic fields and the fine and performing arts, these divisions are: the Humanities, Mathematics, Natural Science, and Social Science; Dance, Drama, Music (Instrumental and Vocal) and Painting. A serviceable deployment of the student body was preconceived in terms of some 60 students in three groups, for the language arts and literary studies which were to comprise the Humanities; some 40 students in two sections of Mathematics; some 60 in the Natural Sciences and 60 in the Social Sciences. Numbers in the fine and performing arts could not be so arbitrarily pre-determined, since balance in orchestral and choral groups would have to be played against superiority in ability, and since the talent supply in these "non-academic" fields was not so readily predictable.

As thought about the curricular structure on the whole progressed, these eight delineated fields came to fall within the first of three "areas" into which the whole program is now divided. Area I, called "Aptitude Development," occupies the greater portion of scheduled time, since it is principally for the advancement of particularized abilities that the special program has been conceived. Area II, called "General Intellectual Development," provides opportunity and justification for working at other potentialities within the individual than his peak talent. And Area III, called "Self Insight and Personal Development," (an area not formulated in time for the first session and to date only shaped in theoretical dimensions, and not yet officially adopted) is intended to strike directly toward the critical problems which intellectually superior and creative persons tend to experience in adjusting to and attaining productive status within society as a whole.

By and large, a solid block of morning time, two and a half to three hours, was delegated to the student's pursuit of studies and activities within one of the eight divisions in Area I: Aptitude Development. The afternoon and evening hours were reasonably apportioned to studies in Area II: General Intellectual Development; and, as approved for the approaching session, to Area III: Self Insight and Personal Development. Recreation, informal social mingling, and spontaneous activities (including some of the horse play and razzle-dazzle of energetic and imaginative youth) rounded out the daily routine in the first summer session, with an increasing number of evenings going to observance or participation in concerts, dance, stage productions and the like resulting from the formal program.

Within the framework of these three broad areas, which by their nature serve to delineate the objectives or process goals for whatever is done summer after summer in the Governor's School, the concrete schedule of studies is worked out. The division of responsibilities and labor in the devisement of this schedule of activities recognizes the importance in general of the instructor's role in making real any potential course of study, with somewhat more importance placed upon the instructor's role here by virtue of the experimental nature of the curriculum and the superior ability of the persons selected for the instructional staff. The division occurs along these lines: The executive committee of the governing board and the administrative staff, both of which groups supposedly have continuing responsibility throughout the project period, have assumed responsibility for the overall design of the curriculum and for illustrative content and methodology in the various areas. The efforts of these persons must assure that the basic purposes of the special school as specified in the proposal for the project and in the ensuing developed philosophy and objectives are consistent with the disciplines and criteria which determine the nature of what is to be taught.

These administrative authorities, however, do not go farther than this. The instructional staff, working in groups of two, three or more as the various areas divide the student and teacher personnel, determine which of the illustrative bodies of subject matter will be attempted during the period of their service. Thus the staff employed in the initial summer of 1963, set about to choose their subject fields, their texts and related materials, and otherwise to plan for the conduct of the eight weeks of study with their respective groups. In this manner, with each staff reporting in successive summers what was actually done within the suggestive area frameworks, and with these concrete endeavors supposedly "covered" by research and evaluative procedures, it is intended that the curriculum will take on increasingly material form. The particular offerings and activities may and should change according to the ingenuity of the staff immediately responsible. The continuity of the curriculum, however, is assured by the nature of the areas, the process-goals, to which each successive particular curricular devisements continually strive to relate.

Of specific subject content within each curricular area only the briefest indication of what has been developed thus far for the staff to draw from can be touched upon on this occasion. For those interested in greater detail, a more extensive paper, still tentative, has been prepared and may be obtained from the officials of the School. (Note: In this paper, also, the writer will treat only the academic areas of the comprehensive curriculum. Apart from certain considerations relative to the general theory of differential education, as this theory touches upon the arts as opposed to academic subjects, the speaker has no responsibility and claims no particular insight. The School retains a special consultant for the fine and performing arts.)

Area I: Attitude Development

(a) Humanities (English and French comprising the initial course work). Studies that qualify as differential education for the gifted in this curricular segment are: Linguistic Sciences (such as Philology, Comparative or Structural Linguistics, Semantics); Languages of the World (other than the familiar Western tongues); World Literature (other than the familiar American and English); Aesthetics, Historical and Comparative Studies of Art; and the Classics (ancient art and civilization).

In a given summer, the instructional staff responsible in this division will formulate a program of studies from subject matter of this variety. The particular offerings may and should vary according to personal skills and interests on the part of staff and students. However, these offerings must be disciplined by the various criteria noted above (i.e., they must pertain to the specialized talent, must advance the already accomplished student, must supplement the usual studies rather than replace them, preferably in the manner of generic studies more fundamental and abstract and technical than can be readily managed at present under local school conditions). Whatever is done in particular, then, in that it parallels other particulars with respect to its relevance, will shift from time to time, hopefully allowing for significant experimentation and discovery of promising subject matter which can be transferred in essence back to the local school.

(b) Mathematics. Studies in this discipline may be in the nature of extensification, additional fields of mathematics to those normally included in the required or elective sequence in the local school. An example would be the introduction of Statistics, which could lead further into applications in Probability Theory and Experimental Design, so that through these studies the continuing pursuit in school and college of both natural and social sciences could be understood and managed at a more formal and technical level. Intensive pursuits provide additional potential, i.e., engagement among ideas and processes underlying the descriptive and prescriptive dimensions which mainly characterize the established curricula. Among these potentials, again a judicious admixture of particulars to be arranged by staff, are: "Historical Studies in Mathematics ("Creative Moments"), biographical and autobiographical analyses of the intellectual experience leading to great advances in the field, and contemporary problems in mathematical thought — study intending to explore limits to what is now known, as distinct from the perpetual exposition of what has already been thought through.... (Cited from the fuller paper referred to above.)

(c) Natural Science. Potential studies within this currently favored curricular segment have been indicated to fall within three categories. First, there are subjects like Astronomy and Geology, which provide just as much fertile thought and essential information as the more frequent offerings of Chemistry and Biology, which may be drawn upon. Either introductions to whole fields not otherwise likely to be encountered by the student, or studies in the vein of the more promising interpretations of the older "general science," linking all science in terms of fundamental processes and process relations. "Advancing Frontiers of Science" — this concept provides a second body of resource material. Phenomena like "radio astronomy," "the laser light," and "imprinting," have been treated in published works suitable for supplementation of the usual curricular content. And third, curricular substance lies available to an able staff and exceptionally endowed and interested learners in the theoretical substrata which underlie the substantive principles in the field. Ideas drawn from the philosophy of science concerning the validity of various methodologies through which inquiry is pressed provide leads in this direction, as do broader studies concerning the role of science in human culture. For all these potentialities the difference between mere words that sound good and tangible experience for capable learners can be found in a wealth of publications upon which staff may, and is, drawing.

(d) Social Science. Perhaps the most generic source of suggestions for educational experience in this segment of the curriculum lies in the difference between the concept "social science" and the more frequently used notion of "social studies." Much needs to be done beyond the level of descriptive fact and principle, to open up for the promising student the dynamics, the methodological and logical foundations of his preferred field. One experimental effort in this direction that has commanded some interest at large was the partial use during the first session of the GSNC of a special course, "Introduction to the Social Sciences" in which the students read materials from five social science fields selected to represent these fields in their scientific dimensions. (This course was developed by John H. Sandberg, Director of Teacher Education, Carnegie Institute of Technology, as a doctoral dissertation at the University of Virginia in 1962.)

Beyond this major conceptual distinction and all that it implies, the resources through which the curriculum may be supplemented are comparable to those just noted for the natural sciences, i.e., subject matter not ordinarily included in the established curriculum (for instance, Anthropology, Social Psychology), and reflections of contemporary realities which enliven and make real the substance of textbooks (for instance, comparative analyses of the dynamics of the Kennedy and Johnson administrations; the role of communication media in governmental processes like formation of defense budgets, and in judicial processes like the Jack Ruby trial). Abstractions made from the usual substance provide further resource, as can be perceived through titles of books such as "The Anatomy of Revolution," "History as the Story of Liberty," and "Ideology and Utopia." The presentation of historical facts and processes in the light of major analytical and interpretive themes fits a number of criteria which detail what education for the gifted ought to comprise.

Area II: General Intellectual Development

Studies designed toward this end are by their nature intended to relate to intellectual uses and substantive content falling outside those delineated behaviors comprising the specific aptitude and nurture therefor. Special education here seeks exceptional curricular substance for the attainment of general educational objectives, paradoxical as the terms sound.

Potential course offerings may be drawn from two sources; (a) from the substantive content of thought about abiding issues that have concerned man throughout the record of his existence — significant abstractions like Justice, Truth, Cause, Purpose, Change, Love and the like. The actual curriculum in this area during the first session utilized the scholarly accomplishment resulting from some eight years of labor by a group of scholars at the University of Chicago, the "Great Ideas: A Syntopicon of Great Books of the Western World." In this work one hundred and two abstractions were developed and termed "Essential Ideas," to which focal referents passages from familiar "Great Books" were keyed. In the pursuit of these selected ideas, the students were deliberately re-grouped along heterogeneous lines with respect to aptitude, and four to six sessions were spent over a period of two weeks exploring a single "essential idea."

The second (b) body of resource material for Area II is comprised of studies about intellectual operations (as distinct from content). Formal logic, of course involves numerous disciplines to thought which should effectively advance the bright student beyond his own groping efforts toward disciplined thought and discourse. And studies about varying uses of intellect that are rendered valid by desirable practical consequences in human affairs comprise other resources. What intellectual processes do philosophers use, and what are proper problems for the philosophical mode of inquiry? What behavioral properties are involved in scientific inquiry, and what among all postulated realities are best examined through such inquiry? When does a theologian deserve trust? What kind of "truth" is arrived at by the great artist in literature, music or drama or painting? Strictly psychological studies are also useful: What is the extent to which practice improves skill? Why do I not "get" Math though I study it more than History? What ultimate levels do I seem capable of reaching? Such inquiries, close to the heart of all persons, are of special significance for young persons whose primary capital is the mental substance with which they are endowed and have had developed through experience.

Area III. Self Insight and Personal Development

Studies in this segment of the program are directed toward the person himself, taking into account the general problems of personal and social adjustments which make for greater effectiveness of the person within his time. They are guided by the Socratic dictum "Know Thyself," and are predicated upon the observation that few studies in the required curriculum of the American school serve to enlighten the person about the nature of his own mind and motive, the dynamics which prompt his behavior, and the characteristic processes through which man's reason strives for ascendancy over animal impulse. Certain studies within this area, it is intended, will take directly to task the problem of personal and social adjustment which tend to characterize the careers of constructive deviants in interaction among their contemporaries, and in the process of materializing prepotent tendencies toward inquiry, criticism and reconstruction, and innovation.

Subject matter intended to comprise a continuing resource from which this aspect of the curriculum may be formulated by a properly qualified staff include substance from philosophy concerning the nature of mind and of knowledge; anthropological observations upon the nature and variety of developed human cultures; what the sociologist observes about the role of individuals within inevitably associated groups; what the psychologist thinks he knows with some certainty about the dynamics of behavior. Biographical and autobiographical studies of productive men in past periods serve to direct the deviant youngster toward understandings about himself and to anticipate typical problems in personal development and in career advancement which may lie in store for him in his own time.

The logic underlying these kinds of substance as curricular potential is simply that understanding facilitates mastery, and that this principle holds for understandings about personality dynamics as well as it does, though not necessarily in the same manner or degree, to understandings about why grass grows green and why cork floats on water. That such material properly presented can be made understandable and functionally useful scarcely demands argument in an era when primary grade youngsters are being taught from higher mathematics, and responsible cooperation in scientific experimentation is being obtained from secondary school students.

In keeping with the express aim of the Governor's School to attempt the novel, the substance for use in Area III must be plainly fabricated. An attempt to formulate a coherent body of problems, with readings and instructional activities geared thereto, which promises to do what this area calls for is underway at the University of Virginia. There is no certainty, however, that this sheerly creative effort can be worked into sufficient shape to allow for staff preparation and actual implementation during the 1964 summer session.

This suggestive account of what has been conjured up thus far to serve the purposes of the Governor's School will have to suffice for the present occasion. It has already been noted that time will not permit a description of the activities which took place in those segments of the program which dealt with the fine and performing arts. Nor may we engage in an analysis of what the first instructional staff did and did not, fits with the principles which supposedly underlay their efforts. Again, the more complete paper, to which reference has been made, will provide for the further interest of individuals who wish to press for additional rationale or further details; and again also, the full story of the curriculum must await the completion of the entire three years of the project period.

Toward the Future

All phases of the program of the Governor's School of North Carolina were put into operation during the planning stages in the spring of 1963. The planning is still in progress, looking forward to the two remaining summers in the three year project period.

It is hoped that the necessary haste and the part-time conditions which surrounded the initial efforts will explain in part the unquestionably rough edges which discerning critics were, or would have been, able to observe during the initial session. The staff was summoned hastily and ranging from dormitory counselors and visiting medical staff, to instructors for academic subjects, ballet masters, athletic supervisors and orchestral leaders, it represented in the end some eleven states. The rationale in support of the curriculum that the instructional staff was supposed to handle was presented only in a very sketchy form; and the period of time for orientation to what was intended to be by design unusual material, for unusual purposes, and with an unusual student clientele was absurdly, though necessarily, brief.

Grounds for expected refinements lie in the facts that a good number of the original staff will return; the rationale for the curriculum has been worked out with considerably greater clarity and the suggested subject matter in greater detail; and materials have been acquired which comprise a working stock upon which to build, in contrast to the void existing in the beginning.

The program of research which was conceived essential from the start has been placed in the hands of a behavioral scientist retained as a special consultant in this area It is expected that the research and evaluation procedures will provide a basis for testing the various curricular innovations, so that what generates from the special school to the local school will be at least initially proven. And it is trusted as well that this considerable assembly of the more promising youth seeded from a state-wide student population will provide fertile grounds for research that will add to the store of scientific knowledge about persons of superior ability.

One overriding problem which seems to have no immediate and effective solution, is that of sensitizing an instructional staff, employed for excellence in specific fields of an academic nature or in the fine and performing arts, to the equally essential understandings of the behavior potential which resides in a solid constituency of superior ability. The teaching staff must come to understand the principles and processes of differential education, in the sense that these comprise an educational regimen equally as distinctive from the ordinary as is the student clientele itself. Understanding how persons with transcendant intellectual abilities reckon with transcendant ideas, issues and problems, and to what ultimate ends, are necessary facets of preparation for the task of transforming talent potential into talented performance. How these understandings can be transmitted to a staff prior to service when the time is pre-empted by current duties provides at the moment a pervasive, critical and unresolved problem.

All things considered, the Governor's School contains within it the possibilities for a significant educational endeavor. The problem of "how to educate the most educable" is of increased significance in the contemporary world over what it was approximately fifty years ago when the problem was being first sensed. The three year project period is intended to allow for experimentation and development so that the worth of continuing this kind of special school for gifted and talented youth can be fairly appraised. Should what results within this period be sufficiently impressive that it is retained as a permanent feature of public education in North Carolina, those initially charged with the School will have discharged their responsibilities well. The full story of course, of which the present account is but a beginning, remains yet to be written.

SPEECH, LANGUAGE, AND COMMUNICATION

LATERALITY, DOMINANCE, AND LANGUAGE

Daniel R. Boone

Children display more difficulties distinguishing between the words "left" and "right" than they do between such other directional coordinate words as "high-middle-low-front-back." This left-right confusion appears to be a focal language problem and not representative of basic sensory-motor difficulties in spatial perception. Since we do not have absolute clues for our spatial relationships to the outside world, we must have a point of reference around which to organize relative impressions; this point of reference is self. Such directional coordinates as "up" and "down," "front" and "back," "left" and "right" are directions away from or towards the self. Piaget (1956), Kephart (1960) and Roach (1962) have written how the self-body image provides a solid basis from which the child develops complex perceptual-motor skills. Kephart (1960) has developed, with his 11 perceptual-motor tests, an instrument which measures the child's ability to perform on a perceptual-motor basis relative to these various directionality coordinates. Roach (1962) has recently provided normative standardization for these 11 Kephart performance tests.

With the growth of directional perceptual-motor skills there is a concomitant growth of verbal symbols associated with directionality, with the sole exception being the lag and frequent absence of "left" and "right". Children seem to learn the meaning of the words "up" and "down" and "before" and "behind" many years before they learn the meaning of the words "left" and "right", perhaps because of a "differentness" in these directionality coordinates. For "up" and "down" the individual has no freedom of choice in response. Everything is down unless by use of anti-gravity muscles and special structuring the individual is able to maintain the up position. There is, therefore, a bias for downwardness. There is also a bias for "frontness". The human being reacts primarily to the world in view, that which is in front of us. We lack receptors to perceive well the world behind us. For sideness, however, we have a freedom of choice for either left or right. There is no bias to go either direction until the development of hand preference occurs. After the emergence of handedness, and apparently not before, the individual has a sideness bias towards the side of his preferred hand. It might well be postulated that the bias for particular directionality coordinates, such as "down" and "front," aids the individual in learning the meaning of the word names;

the learning of the meaning of the words "left" and "right" is perhaps delayed until the bias of handedness is imposed. For some individuals "left-right" discrimination presents a problem throughout childhoold and may even extend through adult life.

Laterality

For various reasons, the educator has long had an interest in the development of handedness in the child. Handedness implements directionality, particularly in perceptual-motor behavior related to laterality. There are many conflicting statements relative to the emergence of handedness in children, and one must search the literature to develop a consensus of opinion. While hand preference may appear earlier, Gesell and others (1940) state that by approximately four years of age children show consistent and firm signs of unilaterial hand preference. This unilateral manual skill preference continues to exist until about the seventh year. At age seven, for reasons that are not fully known, the child again shows competency in bilateral manual activities (Gesell and Ames, 1947); he continues to demonstrate unilateral hand preference for the act of writing for which he is receiving instruction in school. By age eight, probably influenced by this writing instruction, the child shows a unilateral preference for hand which persists throughout the rest of his life. While most children demonstrate a native preference for one hand independent of training, some children appear to have an early and acquired predilection for hand preference, either the result of a central or peripheral injury, or the result of teaching. There appears to be a much greater tolerance in our culture today for left-handedness, and few children are subjected to dextrality training when they are natively endowed sinistrals. A recent study by Clark (1959) found about eight percent of elementary school boys were left-handed writers and about six percent of the girls used their left hands. Clark states that approximately seven percent of our average population appear to be left-handed. Harris (1957), in using the Harris Test of Lateral Dominance, has found a high proportion of mixed handedness among children, particularly among poor readers. Of clinical interest is Harris' observation that determination of eyedness and footedness does not provide too much information relative to lateral dominance, with the relationship of eyedness and footedness reported as relatively poor. After some years of testing eye and foot preference in a clinical speech and language setting, this writer cannot recall a single instance when this information influenced speech or language therapy in any particular direction.

Preference for left hand or right hand appears as something independent from the ability to discriminate verbally between left and right. Average children appear to learn the verbal discrimination of spatial opposites (such as "up" and "down") at an early age, but persist into the school years having difficulty with the discrimination of "left" and "right". Benton (1959), in a series of studies on finger localization, has reported serious difficulties exhibited by many youngsters in making the verbal distinction between left and right. Belmont and Birch (1963) recently reported that five year old children have severe problems in discriminating between left and right, and that normal children do not, until age ten, demonstrate consistent success in distinguishing between left-right directions. It appears that several years are required after the emergence of handedness before the child can correctly discriminate "left" from "right." Left-right discrimination confusion was expressed well by Hebb when he wrote that children may learn early that "right" and "left" each refer to a side of the body—but, ah me, which one?" (Hebb, 1962). Benton has even concluded that many of the body image problems displayed by children are not body image problems per se, but represent language problems in the comprehension of the words "left" and "right".

It is more and more recognized that there is a need for comprehensive normative data on language development, even related to functional usage of particular words. At the present time at the University of Kansas Medical Center, we are developing a test instrument which will measure the child's comprehension of spoken directionality dimensions, such as "high-middle-low-left-right". Although we will be investigating the vertical dimension of "high-middle-low," the focus of our test will be in determining the child's success in the verbal discrimination between "left" and "right". The vertical-horizontal axis, with the self as the central zero point, appears basic to early learning. Certainly our early teaching endeavors in such subjects as reading, writing, music, and arithmetic employ various verbal concepts of laterality such as "left" and "right". We use such words as "high-middle-low-left-right" in our pre-school and early primary teaching, yet there is no normative evidence when these words should be present in the recognition vocabulary of the children. From our pilot data collected at this time, it appears that not until nine or ten years of age are normal children able to make correctly "left" and "right" discriminations. While group data shows that most youngsters ten years of age have little difficulty making a left-right discrimination, this task even at this age may present impossible hurdles to particular youngsters. Perhaps we need to test routinely the left-right discrimination abilities of school children and teach those with left-right discrimination difficulties within a frameword of special instruction to distinguish "left" from "right". The learning of reading, writing, arithmetic, and music may be hampered for the youngster with left-right discrimination difficulties. For example, the only visual difference between the orthographs "b" and "d" is one of laterality; in one instance the stem is to the left of the circle and for the "d" of the stem is to the right of the circle. Reading in our culture basically requires a left to right movement; arithmetic generally requires a right to left direction.

Dominance

Handedness does not appear to contribute too much to the establishment of cerebral dominance. Traditionally, we have been told that by using the right hand we would be developing the left cerebral hemisphere as the dominant hemisphere for language. The primary advantage in using one hand is for the development of the fine motor-skill required for writing. Hand preference also appears to aid in the development of the discrimination between left and right, since it appears from the developmental data that we learn the words "left" and "right" after we have established some unilateral hand preference. Roberts (1959) has stated that cerebral dominance appears unrelated to which hand we use. One cerebral hemisphere appears to take the lead in establishing the high verbal behavior of language, and in most cases this appears to be the left cerebral hemisphere, regardless of handedness. It is commonly observed among aphasics (those patients with aphasia who had normal language functions before cerebral insult) that they have left cerebral hemisphere damage. Penfield and Roberts (1959) reported that 73.1% of 175 patients after left hemisphere surgery demonstrated symptoms of aphasia; 115 of 157 patients (73.2%) were right handed and 13 of 18 patients (72.2%) were left handed. A dramatic contrast in incidence of aphasia after brain operation is seen in their results for 211 patients with right hemisphere lesions; one of 196 patients (0.5%) was right handed and one of 15 patients (6.7%) was left handed. The over-all incidence of left hemisphere lesions producing aphasia was 73.1% and for right hemisphere lesions producing aphasia the incidence was 0.9%. The literature on aphasia includes studies by Bauer, Wepman, and others (1, 10, 19) who state the incidence of right hemisphere lesions and symptoms of aphasia as extremely low with gross language symptoms observed primarily among those patients with left hemisphere lesions.

We have also learned from our acquired brain damaged population of children, that a severe and persistent aphasia rarely occurs from unilateral cerebral damage before the age of nine or ten years. The children we see who have a unilateral cerebral lesion and then show symptoms of aphasia, invariably have left hemisphere lesions; however, if they are under age nine they make rapid and complete language recoveries. Sugar (1952) stated that in children between five and ten years of age injury to the dominant hemisphere produced only a temporary aphasia. After the age of ten years, language symptoms persist and often intensive language retraining is required.

The speech pathologist-audiologist and educator are often handicapped in their considerations of dominance and cerebral function by the limiting concept of "cortical damage". In reality, there are few patients we see who have discrete cortical lesions.

Most cerebral pathologies are related to blood supply changes within the cerebrum; either a blood quantity deprivation (such as the vascular occlusion noted in the typical CVA) or a blood quality deprivation (such as observed in anoxia or toxemia). Sub-cortical areas of the brain are most vulnerable for destruction from these blood quantity-quality deprivations. Most of our aphasic patients have sub-cortical destruction as the primary sites of cerebral damage. Penfield (1959) has developed an excellent discussion of cortico-thalamic and thalamo-cortical tracts and their importance in language. Elaborate dissection of sub-cortical areas by Ludwig and Klinger (1956) have shown detailed cortical-sub-cortical anatomical relationships which when intact are believed to be vital for the development of language.

There is some evidence that in young children who show developmental aphasia, who have never developed language in spite of relatively normal intelligence, that these children have bilateral cerebral lesions (Sugar, 1952). From the clinic observations of youngsters and adults who acquire aphasia, it would appear that in most cases the aphasia has been caused by sub-cortical lesions within the left cerebral hemisphere. Before the age of nine or ten years, however, the child who demonstrates some language difficulty because of incurred left hemisphere damage will usually show a rapid and complete recovery. This suggests that the firm establishment of cerebral dominance does not take place until after the ninth or tenth year. There are indications that the establishment of dominance within the left cerebral hemisphere will occur regardless of handedness. Further studies relative to the development of handedness and establishment of cerebral dominance are needed.

Conclusion

Consideration of handedness, laterality, and dominance is not the sole province of any particular discipline. In our efforts to improve our own disciplines, we must not ignore or reject the literature and findings of other disciplines. While it is not the job of the educator, psychologist, or speech pathologist-audiologist to postulate lesions, it is our task to describe and identify the behavior of the child. It is still necessary, whenever possible, to make some identification of the etiology of a child's problem. For example, the language behavior of the deaf child differs characteristically from that of the child with an over-all mental retardation, and our teaching approach for these two different children requires some differentiation of etiology. We continue to have a great need to cross-over among disciplines for the common goal of understanding the child. In recent years we have seen the inter-disciplinary approaches towards the child with perceptual-motor problems and language disorders. Kephart (1960) and his directionality tests have provided us with measures for assessing the child's early perceptual-motor behavior. Kirk's Illinois Test of Psycholinguistic Abilities (1961) has provided not only the educator but the speech pathologist-audiologist with a valuable instrument for assessing the over-all language abilities of the child. The speech pathologist has contributed information relative to the speech articulation and language development of the child; our interest at the University of Kansas Medical Center in developing a test to measure left-right discrimination is an example. Certainly the psychologist's many non-verbal intelligence tests provide a view of the language impaired child that we could not have without such tests.

Future developments in the relationship of language to cerebral function are going to demand even more of an interdisciplinary approach. We cannot afford, as behaviorists, to get too anti-structural in our thinking. We need to develop an awareness of the work of the neuroanatomist and neurosurgeon. We need, also, to develop some familiarity with the capabilities of the computer. For in the immediate years ahead we can predict a joining of forces of the behaviorist and the neuroanatomist and the neurosurgeon, with able assistance from the computer, in attempting to explore cerebral function and its relationship to language. An immediate task, therefore, for the behaviorist is recognition of the need to develop measurements based on valid instrumentation. We still cannot intelligently discuss language development until we first develop comprehensive normative data. In the final analysis, the child with the language disorder will be an educational problem requiring our teaching and our special education techniques. As part of the tremendous surge of interest in cerebral function and language, we, the behaviorists, need to be actively representing the behavioral characteristics of the child.

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EXPERIMENTATION IN A SPEECH AND LANGUAGE PROGRAM FOR THE MENTALLY HANDICAPPED CHILD

Myfanwy E. Chapman

"Plans get you into things but you got to work your way out." I was reminded of this quotation, from the sayings of Will Rogers, as I tried to pull together some helpful ideas to share with you. I have chosen to tell you about the experimental work we have been doing in a language program in our classes for the mentally retarded children. My personal connection with this program has been largely in a consulting capacity to two resource clinicians, Max Spriggs and Barbara Drolet. I am, therefore, just a reporter.

It is not unusual to find that more than half the children in our classes for the mentally handicapped have speech problems of some kind. The speech problems which these children exhibit are correlated with their retardation in development of language communication skills, percepts, and concepts.

Possibly an explanation of terminology might be in order before reporting procedures in our study.

First, to differentiate between speech and language a quotation from the *American College Dictionary* may clarify our thinking: "*Speech* is the expression of ideas and thoughts by means of articulate vocal sounds or the faculty of thus expressing ideas and thoughts. *Language* is a set of conventional signs, used conventionally and not necessarily articulate or even vocal (any set of signs, signals, or symbols which carry meaning, including written words, may be called language). Thus language is the set of conventions, and speech is the action of putting these to use."

Strauss and Lehtinen, in the book *Brain-Injured Child,* explain the terms *perception* and *sensation* in the following way: "*Perception* can be considered an activity of the mind between sensation and thought. It is the mental process which gives particular meaning and significance to a given sensation and therefore acts as the preliminary of thinking. It is the means by which the individual organizes and comes to understand the phenomena which constantly impinge upon him. *Sensation,* the antecedent of perception, is a function of the sense organs, the highly specialized parts of the nervous system which enable the organism to make contact with its environment. The response occasioned by a stimulus does not end with the nervous activity of the peripheral sense organ, but it incites to activity the areas of the brain directly connected with the sense organ in question and very likely the brain as a totality. Thus through participation of the brain we identify particular sensations such as daylight, artificial light, or lightening. We recognize the objects in our environment as furniture, plants, people and very particular people. Varying sensations in the ear are recognized as noise, music, hammering, barking, a familiar voice, and so forth. Through the activity of the brain a sensation gains meaning and becomes a perception (meaning) indicating that the sensation has organization significance and experimental content. We speak of the perceptions arising from various sensations as visual perception, auditory perception, tactual perception, and so on."

Conceptualization represents a receptive association function, the development of reasoning is based upon the ability of the individual to select from his past knowledge appropriate information in order to solve a problem. This ability is based upon effective language development and adequate perceptual and memory skill. Gallagher has this to say, "A child who can muster only one association to a given concept or percept has limited ability to use it effectively. In a sense, this limited ability to associate functions with concepts, and concepts with other concepts, is a key part of any definition of a mentally retarded child."

In 1959, feeling that we were not really adequately meeting the speech and language needs of the children in our classes for the mentally handicapped, we assigned one person as a resource clinician in this area. In the first year of our experimental program (1959-60), 116 children, ranging in age from seven years to about fourteen years, were tested. The intelligence range was from "trainable" (IQ 30-50) through "educable" (IQ 50-75). As many as possible of these subjects were retested in 1960 and again in 1961, thus providing a longitudinal comparison. Measures used included basic data about the child's age, IQ, vision, hearing, oral structures, neurological problems, and the like. The second section was a speech, "say after me", articulation test. The third section measured auditory discrimination.

To summarize this phase of our study I quote from our resource clinician's guide: "The study began as an exploratory effort to combine some methods of speech correction with the total program of the classroom teacher with the goal of integrating corrective speech practice with other kinds of classroom learning. Over the two-year period of the exploratory study, many improvements in oral communication of mentally retarded children were observed; simultaneously, some methods and activities were developed which were compiled into a guide for teachers."

Our resource clinician, in 1962, became so intrigued with the problems of the mentally handicapped child that he left our department and joined the ranks of the classroom teacher.

With the assignment of another clinician as resource person, it seemed a good time to take stock, so to speak. While auditory discrimination and stimulation, auditory training and speech practice had proved important we felt that there were limitations. It appeared that we needed to take a more extensive look at the language needs of these children.

As we recognized at the beginning of our study, essential in any program for the improvement of language and speech is an evaluation of the needs of the pupils involved. At this stage our concern about the language needs of these children necessitated finding further measuring and diagnostic devices. We realize that all tests have limitations, but along with clinical observation and reports of various kinds one can get a fairly good profile of the individual and group needs.

Our resource clinician first did an extensive review of the literature and made a study of research in terms of finding out which established programs would meet the needs of the children for whom we were planning. She found that many of the experimental programs had been carried out in institutional settings. These did not answer our problems but they did furnish us with clues.

Space will not permit a complete review of those we studied. Among those which proved helpful were the following:

> The Tutoring of Brain-Injured Mentally Retarded Children. James Gallagher. Published by Charles C. Thomas, Springfield, Illinois, 1960. The experiment reported in this book deals specifically with the effects of individual tutoring on the intellectual development of mentally retarded children in an institution. The author was interested in finding out whether one hour a day

tutoring of these children would produce results not obtainable through group instruction. Goals of the tutoring program were to improve the child's use of his intellectual processes: (1) training the child to more effectively conceptualize the world around him; (2) to use these concepts in everyday life in reasoning through problems; (3) to improve his communication with others (4) to improve his comprehension of the behavior of others.

Leon Lassers and Gordon Low, in 1960, The Communication Centered Therapy, San Francisco State College, sought to investigate the effects of two different approaches to speech therapy upon the general communication effectiveness, articulation and sound discrimination of public school special class retardates (C. A. range 8-15, IQ range 40-79). A communication-centered approach (utilizing the practice of daily speaking activities to promote the correction of articulatory problems) was compared to a traditional sound centered approach (part to whole) over the four month experimental period. All children received small group (2-5) attention for thirty-minute periods four times per week.

Parson's Project in Language and Communication of the Retarded, reported in a Monograph of the Journal of Speech and Hearing Disorders, January, 1963, investigated the effects of speech reinforcement and "bombardment" treatments on verbal behavior of institutionalized mentally defective children (C. A. range 9-12). This speech and language stimulation was carried out by psychiatric aids over a period of eighteen weeks with the New Parson's Language Sample being used for pre-test and post-test comparisons. The summary is too long to report at this time.

J. O. Smith reports on a study, Effects of Group Language Development Program upon the Psycholinguistic Abilities of Educable Mental Retardates. It was the purpose of this experiment to study the effects of a group language development program upon the psycholinguistic abilities of educable mentally retarded children. The investigation sought to determine whether or not the language age of young educable mentally retarded children could be significantly increased as a result of approximately three months experimental treatment. This study further afforded an opportunity to examine the relationship of IQ and initial language age to the gain in language age.

"It was concluded that this study:

1. Presented evidence which partially answered the urgent need for objective verification of the value of language development programs for the mentally retarded.

2. Identified a practical, short-term program of language development which significantly increased the LA of young EMR children.

3. Adds to the literature a detailed set of lesson plans for language development which might be used in future educational planning or research.

4. Answers the need for researching such programs with the public school special class retardates rather than institutionalized populations.

5. Lends further research evidence concerning the construct validity and reliability of the ITPA as an instrument for assessing the language abilities of EMR children.

Max Mueller and J. O. Smith followed up this study with one entitled The Stability of Language Age Modification Over Time. This is reported in the American Journal of Mental Deficiency, January, 1964. In their discussion they comment, "Since there was no significant difference between the scores of the two groups at the time of the follow-up testing, we must infer that the gains exhibited by the experimental group were not stable, and consequently that a three month period of language stimulation is not sufficient to make a lasting difference in linguistic abilities of EMR children. This is not to say that the experimental subjects might not have continued to show greater growth in language abilities had the extra stimulation of the experimental program been continued."

In an article in ASHA, December, 1962, Training Mentally Retarded Children in Oral Communication, Mecham and Jex suggest the following general objectives: " (a) create a stimulating and motivating psychological climate; (b) use concrete experiences as the foundation of speech and language training; (c) present verbal symbols and labels for experimental concepts as these are being developed in order for the symbol to become a functional part of the concept; and (d) use standardized developmental schedules in verbal language as a total in the measurement of readiness and improvement in training."

As we reviewed the literature we also explored the area of tests which might be helpful in diagnosis and measurement. Among those we have used are the Peabody Picture Vocabulary Test, Hejna Developmental Articulation Test, Mecham Auditory Discrimination Test, Parson's Language Sample, The Illinois Test of Psycholinguistic Abilities.

Most of you are acquainted with these tests. It may be well, however, to review a few statements from the Examiner's Manual for the ITPA by James J. McCarthy and Samuel A. Kirk:

> Tests at the Representational Level include:
>
> Decoding Tests — Decoding is the ability to comprehend auditory and visual symbols; that is, the ability to comprehend spoken words, written words or pictures. They also include:
>
> The Association Tests — Association is the ability to relate visual and auditory symbols (which stand for ideas) in a meaningful way.
>
> The Encoding Test — Encoding is the ability to put ideas into words or gestures.
>
> Then there are tests at the Automatic-Sequential Level which include:
>
> The Automatic Tests — In speaking or writing, the automatic habits permit one to give conscious attention to the content of a message while the words which express the message seem to come automatically.
>
> The Sequencing Test — Sequencing, as used in the test, is the ability to correctly reproduce a sequence of symbols; it is largely dependent upon visual and/or auditory memory.
>
> The authors make this statement about the clinical use of the test battery:
>
> Our ultimate goal is a method of differential diagnosis of children which can be presented in the form of a psychodiagnostic profile. Such a profile depicts the abilities and disabilities of a particular child. This method of diagnosis should lead to a program of remediation or treatment which will utilize the child's assets to develop areas of deficiency. At present, research is in progress to determine the effects of remedial programs on the removal of specific defects in children.

Upon examining test results of children in our groups we have found that, as a group, the so-called "trainable" consistently fall below the norms both in visual and auditory decoding and are also very low in comprehension. We must, therefore, in our planning give them help in the ability to understand the symbols before we can develop abstract concepts and associations. This can be done by use of structured experiences going from more to less concrete, adding more and more abstractions. If we feel that they have sufficient comprehension of verbal and visual symbols and sufficient ability, we can then attempt to teach more abstract associations. In young children we are more optimistic that they will pass barriers; in older "trainable" pupils we are pessimistic, but even with these older ones we feel that we can help them to react adequately to their immediate needs in their environment.

In the "educable" group we find a wide range in most language abilities in any group. We see that the group shows certain weaknesses; that is, for one group it might be in the area of association function. Again, we'll have to go from less abstract to more abstract and more complicated relationships. We can give them a series of associations. If a given member of the group does not have the ability to comprehend all the symbols necessary for the associations, he then should have individual help in this area. We must always be careful not to generalize.

The more we study this problem the more aware we become that language is a tremendously complex achievement for some of these children, which involves not only ability to understand what is heard and seen but also the ability to draw relationships. One experience is merely a record. This experience has to be repeated in the same way perhaps several times, but this is not enough. The experience must be varied to give an adequate concept of the thing so it can be used in reaction to a situation. We must involve all senses in approaching the problem and we must have a definite pattern in our teaching. To quote J. J. Gallagher, "Too often in tutoring, or in testing for the knowledge of concepts or percepts, it has been assumed that the child knows the concept if he is able to give one association or one function consistent with that concept, that is, if a child is able to answer the question, 'What is an orange?' by responding 'you eat it' he is not necessarily demonstrating extensive or useful knowledge of the concept 'orange'. The child may not know that an orange is a fruit or that it belongs to the citrus family, or that it grows in warm climates. Thus the child might be quite unable to answer the question, 'Why can't we grow orange trees in our backyard?', even though he does know that oranges are something to eat."

Penfield, Speech and Brain Mechanism, 1959, chapters 108-11, has this to say: "Language, when it is learned by the normal physiological process, is not taught at all. It is learned as a by-product of other pursuits. The learner should understand in the language, speak in the language, think in the language, and ignore in the language. For the direct learner, language is not a subject to be studied, nor an object to be grasped; it is a means to other ends, a vehicle, a way of life."

Our resource clinician, Barbara Drolet, has summarized her thinking at this stage of our study. I quote from a talk she gave to the classroom teachers of educable and trainable groups of children: "The primary purpose of any speech and language program is to develop communication in the individual. Communication cannot be defined in terms of distinct verbal units of sound received or expressed, but includes the total effect of the language symbol and the experience of which it is a part upon the individual in relation to his past experience, or lack of it. Then, in turn, communication is the effect of the individual's reaction to the language symbol upon his environment. This too, may be a new experience and may alter his concept of the symbol and its role in communication.

It should be useful in planning a program of language learning to attempt to understand the process of language. The following is an attempt to show this process:

1. The individual receives a stimulus, that is, the word 'apple'.
2. The conscious interprets this stimulus as being either a new or old experience and directs it to the proper concept. This concept is the sum total of his experience in relation to a particular stimulus. He does not recall all the experience he has had in relation to the image of the 'apple' but rather the concept, which is a composite of the

important and unimportant, good and bad.

3. The stimulus is then directed to the sound image if one exists in relation to this particular concept.
4. The response mechanism is called upon and he must use his concept of the proper word image in order to express verbally the proper response.
5. The appropriate motor response which will activate that part of the speech mechanism necessary to vocalize is called upon and a word may be spoken.

We may think of language as analogous to a tree: the trunk representing the concept of, for example, 'egg'. The usefulness of the concept to the child is dependent upon the number of connecting associations or branches the child has. If it is only 'something yellow you have for breakfast', then there are definite limits on the usefulness of the concept. But when it is related to chicken or the beginnings of life and food value, there are more generalizations open to him.

The goal, then, will be to establish as many conceptual associations as possible at the verbal level.

We can then expect the child to use any part of this total concept to react as if he is having the original experiences which make it up in terms of the consequences of these experiences.

Before we can expect the child to develop these concepts we must make sure he has the basic skills (perception, discrimination, quantitative thinking — [size, shape, form, feel], automatic reaction, sequencing, and so forth). If he has these skills we can then work on integration and application of the intellectual skills (association of ideas, conceptualization).

We will see in the group-scatter-scores certain trends, and from these we can plan group activities. We will note that given individuals will deviate from this pattern. These children will require individual help in order that they may benefit from group activities.

The evaluation of language abilities should give us an assessment of which of these skills need our attention.

It would seem most useful to establish a definite sequence for each area, and ascertain that each person has integrated each step before progressing to the next step; that is, apple (1) physical characteristics, (2) unusual physical characteristics (spoiled), (3) uses, (4) origin, (5) classification related to apple, food, fruit, and so forth.

I can, as a speech clinician, give you my assessment of the children, and show you the tools most useful in teaching basic and associative skills, but I am afraid I can do only this much and then ask you to use these assessments and tools to make the most effective use of the classroom experiences. This will be done first with specific structured plans which can be carried on throughout the week, and then it is hoped that these activities related to speech and language will become an integral part of the daily activities rather than an isolated segment of same.

IMPLICATIONS OF RESEARCH FOR PROFESSIONAL EDUCATION OF SPEECH AND HEARING CLINICIANS

Ruth Beckey Irwin

Clinicians or teachers working in the area of communicative disorders may specialize and function in one of three major fields: language, hearing, and speech.

Teachers of the deaf vary in their training from those who serve as clinicians. The teachers of the deaf, teachers of the mentally retarded, or teachers of general speech improvement are curriculum oriented and instructional personnel; whereas, the speech or hearing clinician does not require education courses except for developing an understanding of the public school setting.

The professional education of the speech or hearing clinician who works in the public schools is essentially no different from that of those who work in any other setting. All clinicians need a background of professional training and experience in communicative disorders. Only minimal requirements are necessary in special courses such as school organization, classroom teaching methods, and observations in the classroom. In a report by the U. S. Office of Education (Mackie and Johnson, 1957) some dissatisfaction was expressed with the undue repetition and overlapping in the content of general teacher education courses.

Little research concerned with the professional education of teachers and clinicians in the area of communicative disorders has come to the attention of the writer.

Teachers of the Deaf

The most pressing problem is to recruit and retain well trained teachers. There is need for research to determine why persons do not enter the profession, for objective research in teaching methods, and for the study of curriculum of studies.

Rudloff (1962) sent our 130 questionnaires to teachers at public day schools and residential schools for the deaf in California. Ninety-nine of the 130 questionnaires were completed. Only 22 percent of the teachers held California certificates for teaching the deaf. Some of the comments made by these teachers regarding further training were:

1. More intensive training
2. More contact with deaf children while in training
3. More in-service training
4. More speech training
5. More work with multiple handicapped and slow learning deaf children.

Speech and Hearing Clinicians

The professional education of the speech and hearing clinician who works in the public schools will be influenced by the state certification requirements. Approximately 32 states or 64 per cent have standards similar to those required for the Basic Certificate in the American Speech and Hearing Association (6 semester hours in basic area, 12 s.h. in speech pathology, 3 s.h. in audiology, 9 s.h. in related areas and 200 clock hours of clinical practice). These certification requirements vary considerably from state to state.

In some states, the prospective speech and hearing clinician who wants to work in the public school setting may be required to meet all of the requirements for classroom teacher certification before he can obtain employment in the schools. Such requirements are not necessary in view of the clinical work done. The preparation of both the classroom teacher and the speech clinician are specialized. The speech clinician cannot be competent in both areas within the same amount of time. Such unnecessary expenditure of time and expense discourages many prospective clinicians from entering the profession.

Since speech clinicians in the public schools are not expected to be "teachers," a special curriculum for certification in speech and hearing therapy was developed in many of the states. For the most part, education courses were required so that the clinician might develop an understanding of the organization and administration of the public schools at both the elementary and secondary levels. The methods course and student teaching in speech and hearing therapy were usually considered as education courses.

Several published reports may serve as guides in planning professional training for public school clinicians. A bulletin (Mackie and Johnson, 1957) on the competencies needed by speech clinicians who work in the public school was issued in 1957. Another important publication (JSHD, Monograph 8, 1961) was concerned with the public school speech and hearing services, published by the American Speech and Hearing Association in 1961 as a result of a comprehensive survey of services in the public schools of the United States. Probably the most important guide for the planning of professional training of the clinician who works in the schools is the set of requirements for the certificate of clinical competence, effective January 1, 1965.

The report of the Highland Park Conference on Higher Education in Speech Pathology and Audiology will also have implications for programs of professional education for all areas of communicative disorders.

Professional Courses

All clinical experiences should be preceded by appropriate courses. For example, experience in clinical practice with children who have stuttering symptoms should be preceded by the theoretical course on stuttering which covers the theories and practices of diagnosis and therapy.

A course in methods of the organization and administration of the program of speech and hearing therapy in the public schools should be taught either prior to or concurrently with the internship in the schools. According to the national survey, this type of course is now taught as a separate course in only 36 per cent of the reporting institutions. In others, it is taught incidentally or not at all.

The required courses in the curriculum will be governed by the standards for state certification and departmental requirements of the university. The national professional association, The American Speech and Hearing Association, has established requirements for the Certificate of Clinical Competence (effective January 1, 1965) which will affect all workers in the field. The requirements indicate that the applicant must submit "evidence of the completion of 60 semester hours constituting a well-integrated program that includes 18 semester hours in courses that provide fundamental information applicable to the normal development and use of speech, hearing, and language and 42 semester hours in courses that provide information about and training in the management of speech, hearing and language disorders and that provide information supplementary to these fields."

Observation

The preparation of teachers and clinicians in terms of the effectiveness of observation is an unstudied problem. We assume that the student learns by observing others work in his area of specialty. The student needs to become aware of all a teacher or clinician does which directly or indirectly affects the child's learning. The adequacy of a teacher's training in content and procedures needs to be evaluated in terms of its relevancy to the functions performed in the daily work.

As the result of an experiment in the preparation of teachers (1962) by Sarason, Davidson, and Blatt, it is recommended that teachers learn to be adequate observers, evaluators and influencers of behavior. The amount of information which individuals acquire in no way guarantees that it will be properly communicated. Teachers and clinicians are often inadequate in coping with individual differences.

It would seem that observation should accompany the theoretical courses. For instance, observations of diagnosis and therapy of children with misarticulations should be made while the student is studying about articulation. Supervised observation with suggestions as to what to observe and then followed by a discussion with the clinician or supervisor would allow for learning. According to the natural survey, students begin required observations of clinical practice during the junior year at 51 per cent of the universities and during the sophomore year at 35 per cent. The average requirement involves 29 hours of observation on clinical setting and 21 hours in public school setting.

Clinical Practice

Although 63 per cent now obtain their first clinical experience during the junior year (26% delay until senior year) according to the National Survey, professional training and practice will probably be delayed until the fifth year or during the graduate program if the recommendations of the Highland Park Conference on Higher Education in Speech Pathology are followed. Moreover, the respondents in the national survey on services in speech and hearing therapy in the public school also indicated that graduate education was desirable. Over 75 per cent of the 705 public school speech clinicians responding have training in excess of the bachelor's degree. For the Certificate for Clinical Competence, graduate training will be necessary to complete all of the requirements. In line with all of these trends for the future, it seems advisable to think about clinical practice in terms of beginning sometime during the fifth year of one's college education.

Preceding the clinical practice in the public schools, the prospective clinician will need the theory and practice in diagnosis and treatment of children (grades through high school) in the areas of articulation, voice, rhythm, and language. Since 81 per cent of the children of the caseload in the public schools is composed of articulatory cases, special skills need to be developed in this area. The new certification requirements of ASHA indicate that the applicant should "submit evidence of the completion of 275 clock hours of supervised, direct clinical experience with individuals presenting a variety of disorders of communication, the experience being obtained within the training institution or in one of its cooperating programs."

At least 100 clock hours need to be done in the public school setting after the student has adequate preparation for such internship. In the publication of the U. S. Office of Education, student teaching in speech therapy in a school system under the supervision of a qualified speech clinician was considered most important. Competencies considered very important were experience in individual diagnosis of speech disorders, supervised practice with individuals and groups of speech-handicapped children of all ages, and experience in interpreting case records. In this same report, 120 working speech clinicians recommended as "minimal" 209 clock hours in supervised clinical practice. The median number of hours considered desirable or ideal were, however, 387 and 541 respectively. They recommended equal distribution between the schools and the college clinics. It would seem that if a choice were to be made that more time should be spent in the college clinic where closer supervision is usually available. The student needs to reinforce his skills in the areas where he expects to perform in the internship experience before being allowed to practice techniques and follow procedures which are different or may have doubtful value.

According to the report of the National Survey of "Services in Public School Speech and Hearing," undergraduates complete a total of 230 clock hours of clinical practicum, (89 in the public school setting and 141 in the clinical setting). One course in clinical practice in the public schools is required by 79 per cent of the 168 training institutions; 19 per cent require two or more courses; and in 17 per cent no clinical experience in the public schools is required.

Student teaching experience in speech and hearing is required at 48 per cent of the institutions and in regular classroom teaching at 7 per cent. Thirty-eight per cent require student teaching in speech and hearing as well as in regular classroom teaching. Only 26 per cent require student teaching where there is no speech and hearing program.

The clinical experiences need to include counseling of parents and teachers, interviewing, diagnostic activities, conferences with other professional workers, and setting up a program. Some experience in presenting information to groups to adults is also desirable. A knowledge of, and experience in presenting, speech improvement techniques to teachers would aid the clinician in supplementing his program of services in speech and hearing. Zytkus (1962) found a speech clinician can present information effectively to teachers so that more adequate speech referrals may be made.

Supervision of Practicum in Schools

Clinical experience must be carefully supervised by competent professional workers (holding Certificate of Clinical Competence in appropriate area) according to recommendations of the Clinical Standards Committee of the ASHA. One visit for every three or four sessions of therapy is recommended. This should be supplemented by frequent conferences between student clinican and the supervisor.

In 68 per cent of the institutions reporting in the national survey, the student teaching is supervised by members of the staffs of both academic program and the public school. In 34 per cent, daily supervision of student teaching is available and 52 per cent report periodic supervision.

As well qualified clinicians become available in the public schools, opportunities for daily supervision of student clinicians will increase. Working together with the course supervisor, the public school clinician can be an effective member of the team in the supervision of future speech clinicians.

The following statement made by Sarason, Davidson and Blatt (1962) about preparation of teachers may also be said for student clinicians: "...no problem area in education is as unstudied and as important as the practice-teaching period. What are desperately needed are studies which have as their aims a detailed description of what goes on between the neophyte and supervisor, an explication of the principles which presumably underlie the ways in which this learning experience is structured and handled, the values implicit in these principles and their execution, the efficacy of the experiences which do or should precede practice teaching, and the development of procedures that would allow us to evaluate the effects of practice teaching on the neophyte teacher, procedures which would be better than private opinions." (p. 116)

In his article on education of teachers, Cain (1964) presents some excellent suggestions for all areas of special education. He indicates that there has been little basic research in the area of teacher education in the last 10 years. Some constructive changes have occurred due to pressures of professional and legislative groups. These changes, however, are not supported by research. Such problems as individual differences, differential problems of learning, or role of motivation, guidance or counseling in therapy are among many as yet not emphasized sufficiently.

The report by Conant on The Education of American Teachers (1963) will have its impact on professional education of speech and hearing clinicians. Great emphasis is placed upon student teaching and inservice training.

In a study by the Office of Education (Mackie, Dunn and Cain, 1960) teachers in special education placed highest value on social and psychological understandings. Some evidence was also given for more interdisciplinary training since any one area of exceptionality overlaps others.

An examination of the DSH abstracts indicates many topics for study. Although research in teacher education is limited, subject matter areas have increased in content.

Related to effective instruction is the knowledge and skills in the learning problems of exceptional children. At present most of our procedures and techniques are based on empirical findings — we use what works.

Another area which needs further research is concerned with measuring instruments used to assess abilities and improvement of the child.

Summary

For the most part, the research related to professional education is status type data — what we are and do now. How to impart knowledge and skills has not kept pace with acquisition of knowledge.

The professional training of the clinician who expects to work in public schools should not vary essentially from that of any other clinical worker. If the standards for the Certificate of Clinical Competence are observed, the worker in the public schools will attain a high level of professional proficiency.

In addition to skills needed for work with the most prevalent speech problems, the clinician will want to know how to work effectively and with understanding in the public school setting. This necessitates the observations and study of school activities and procedures.

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THE USE AND USEFULNESS OF THE ITPA

James J. McCarthy

Linguistic disorders in a modern society, for the most part, are either the linguistic disorders of children or have their roots in childhood. The vital importance of the early years in the acquisition and development of a language is axiomatic. This topic will be a semi-technical report on one test that has been developed for the detection of linguistic disorders in children from 3 to 9 years of age. The Illinois Test of Psycholinguistic Ability, named after the University at which it was developed, was first conceived in 1952 by S. A. Kirk, Director, Institute for Research on Exceptional Children. The need for a good test of linguistic ability was apparent, but how to create such a test was not clear.

It is said that after listening to a lecture by C. E. Osgood, Professor of Psychology at the University of Illinois, Kirk asked Osgood to extend his theory of human behavior to cover language behavior. Osgood responded enthusiastically by creating a working model of how one uses a language, which included all the necessary psychological processes. After that, the design for a test was apparent, although the technical work was difficult. In substance, all one had to do was to take these psychological processes necessary for linguistic usage (later called psycholinguistic processes) and create a test for each. The resulting test battery would be comprehensive, and if one had any kind of a linguistic disorder it should show up as defective performance in one or more of the tests.

In 1955, with the help of the Institute staff, Dorothy J. Sievers created the first test based on Osgood's model for her doctoral dissertation under S. A. Kirk. The test was called the Differential Language Facilities Test. This test is still much in use by Sievers and others; the bulk of the studies employing this test appear in the AJMD. The major difficulty in using the DLFT lies in interpreting the test results. Each of the dozen subtests in the test battery assesses from two to seven psycholinguistic abilities simultaneously. This is all right if the subject passes the test, but if he fails the test, as so many handicapped children do, one cannot tell which of the abilities involved was the cause of failure.

In order to overcome this limitation, work began in 1958 on what was to be called the Illinois Test of Psycholinguistic Abilities. The chief difference between this test and the DLFT was that the new test would measure essentially one psycholinguistic ability at a time so that the interpretation of failure could be simple and non-ambiguous. In 1961 the so-called "experimental version" of the ITPA appeared, itself the end product of a long line of experimental revisions. We intended then, and intend now, to revise the test in 1966 or 1967. In this manner we can reap the fruits of wide clinical usage and experimentation occurring between 1961 and 1966 or 1967. Time has shown that research and clinical usage has been stimulated. Fifteen hundred kits have been printed; all the states in the Union and at least six foreign, English speaking countries are using the test. Changes are being suggested that could never have been foreseen without this broad usage. We are realizing that it may be necessary to revise even a final version periodically to keep abreast of changes which occur in the language habits of English-speaking people.

The Use

The test looks much like a WISC in physical appearance. It measures nine basic psycholinguistic abilities and yields a language age and standard score for each test as well as an overall language age or standard score. Without being overly technical, but remaining fairly accurate, the test can be said to assess the following kinds of abilities. Does S:

1. Use the English language adequately (Auditory Vocal Automatic)?
2. Understand what he reads (Visual Decoding)?
3. Put his ideas into gestures well (e.g. acting out a story) (Motor Encoding)?
4. Think, reason, and solve problems in his head (Auditory Vocal Association)?
5. Put his ideas into words well (Vocal Encoding)?
6. Remember correctly symbol series that he sees (e.g. written spelling tests) (Visual Sequential)?
7. Remember correctly symbol series that he hears (e.g. telephone and house numbers) (Auditory Vocal Sequential)?
8. See relationships (e.g. assembling a picture puzzle) (Visual Motor Association)?
9. Understand what he hears (Auditory Decoding)?

Notice that abilities are tested both on a meaningful level and on a second level which does not necessarily involve meaning. Note further that the S's visual and auditory comprehension and his vocal and motor expression are systematically tested. The test materials were created for use with cerebral palsied children because the work on the test has been largely sponsored by the United Cerebral Palsy Research and Education Foundation. Because CP children have more than their share of sensory defects and speech defects as well as motor defects and brain damage, any materials that are suitable for use with all but the most severe CP child are generally useful with most other types of handicapped children including the mentally retarded, speech defective, crippled and health impaired, auditorially and visually impaired, and those with neurological impairment. And, in fact, published or pending research is being done on the use of the test with all these types of handicapped children, and also with the gifted. I cannot dwell on each of these interesting studies, but I have appended a list of references for those who are interested. Some of the conclusions reached were:

1. A significant improvement in either overall language ability or in a specific psycholinguistic ability can be obtained over a treatment period of three months in the EMR and that this gain will be maintained for from 3 to 9 months following cessation of training. Blue (1963) showed it was possible to get over a five-month gain in LA during three months of training in a small group of TMR children. Although this gain was not statistically significant it was very encouraging when viewed against results obtained in most treatment programs for trainable children.

2. The ITPA profile of various types of exceptional children has been compared without notable success. Mueller (1963) compared gifted and retarded children by graph plot and found he could not distinguish them by profile shape. Nor have the various types of CP children been distinguishable in this manner; nor have deaf been distinguishable from aphasic. It would be very nice for diagnostic purposes if each type of disability would draw a different kind of performance picture, but apparently either they do not or the ITPA is not sensitive enough to detect it. Trends have been found. Mueller (1963) found the gifted more to Auditory Vocal ability inclined and the mentally retarded more able in the Visual Motor area. Herman (1962) found the profiles of MR's within given families to be similar.

3. There appears to be a rather persistent correlation of about .65 between LA and MA in handicapped and normal children.

4. In handicapped children, at least CP and MR, the LA is typically lower than the MA.

5. Research and clinical observation seem to indicate that the ITPA confirms clinical impressions. That is, the clinician tends to find what he thought he would find. In addition, it has been suggested that the theoretical model be re-examined for factors, tests for which have not been included in the present ITPA battery. Kass (1962) for example, working with severe reading problems (dyslexic children) found that some of the tests which best distinguished the dyslexic from the normal reader were not included in the ITPA battery (e.g. perceptual speed, visual closure, and sound blending ability). It is not known yet whether these things constitute distinct factors or are, developmentally, parts of factors already existing in the ITPA, but Kass's work certainly requires that further inquiry be made.

6. Finally, a potpourri of odds and ends things: there appears to be no real sex difference on the ITPA; in general, boys do as well as girls. Another consistent finding is that social class is related to ITPA score — the higher social class (other things being equal) score higher on the ITPA. We have also found some evidence to bolster the claims of the traditional child development people; namely, that the first child in a family tends to score higher on the test. As a matter of fact, there is some slight evidence that the second child does more poorly than the first but better than the third, the third more poorly than the second but better than the fourth, and so on. But this is only a slight tendency and needs much more experimental verification.

Dr. Mohammed Quereshi has done extensive work on the ceiling cutoffs of the ITPA subtests. For example, on a guessing test where the subject has to select from among two alternatives, he has a 50-50 chance of picking the correct one. We have, therefore, said that on such a test (e.g. Auditory Decoding in the ITPA) we will conclude the subject is guessing when he passes only 4 in any 8 consecutive items. We could have said 1 in 2, 2 in 4, or 8 in 16, but 4 in 8 seemed reasonable. According to Quereshi (1961, 1964) 2 in 4 would have been better because it would have resulted in a more reliable test. It is with great pleasure that we find for once that the easier way to do something is also the best. Clearly Dr. Quereshi's findings will be built into the next ITPA. His latest work is an enormous, technical report but a quite revealing one for it does not support many previous ideas about test cutoffs.

Usefulness

The usefulness is another factor. The test constructor may ask, "useful for what purpose?" The ITPA is not useful to a person who has had no experience in individual psychological testing for such experience is needed to properly administer the test.

There are some who question its usefulness for remediation, believing that it shows defects and is useful for diagnosis, but that once this has been determined, what remedial measures can be applied? Others feel that its chief usefulness is that it points the way to remediation. Smith (1962), Blessing (1964), Blue (1963), and Espeseth (1964) have listed their remedial measures in their studies and these are or will soon be available. However, at the completion of the construction of the ITPA, the co-authors realized two needs related to usefulness. One was the creation of remedial measures for use with deficits revealed by the test. Kirk has been working on a laborious case-study approach to this problem, developing and testing remedial techniques. In a short time, perhaps this year, a manual on remedial techniques by Kirk and Bateman will be published — the end product of persistent and consistent research efforts begun over a decade ago.

The other need related to usefulness is to determine the psychological adequacy of the test. Is it reliable and is it valid? This is the work Dr. James Olson, Assistant

Professor of Special Education at the University of Wisconsin in Milwaukee, and I have undertaken.

As far as reliability, the test-retest estimate for the ITPA battery is .97 and the estimates for the individual subtests range from .73 to .96. These and several hundred other correlations of various sorts used in evaluating the ITPA have been published and are available in a monograph entitled *The Construction, Standardization, and Statistical Characteristics of the Illinois Test of Psycholinguistic Abilities,* by S. A. Kirk and myself. It is my feeling that the serious student of test reliability could conclude that the ITPA is adequately reliable. In essence this means that further effort could result in only small improvements, that the test is sufficiently reliable for clinical use right now, and therefore research on the ITPA should be invested in other areas such as remediation and validation.

A little over a year ago, Dr. James Olson and I began *validity* work on the ITPA in an attempt to provide the user information on which his test interpretation depends. Our data have been collected and are in the process of being analyzed. We have, however, some tentative results which I would like to share with you.

There are five kinds of validity we are concerned with on the ITPA based on the kinds of purposes test users have for employing that test; these are Concurrent, Predictive, Content, Construct, and Diagnostic.

Concurrent validity refers to the degree of correlation between the ITPA and criterion tests. Criterion tests are extant tests which reasonable men would judge to measure linguistic ability and with which the ITPA therefore should have a fair degree of correlation, as it too purports to measure linguistic ability. We chose as criterion tests the word meaning, paragraph meaning, and spelling sections of the Stanford Achievement Tests, the PPVT, and the Binet MA. These tests were administered, along with the ITPA, to a group of 86 children in grades 1-3, selected on a stratified random basis to resemble as closely as possible the original standardization group used for the ITPA. These are the results:

	ITPA	PPVT	SAPR	SAWR	SAS	MA
ITPA		38	50	47	45	53
PPVT			39	48	38	42
SAPR				85	78	55
SAWR					85	50
SAS						54
MA						

All correlations are significantly different from zero at well beyong the .05 level. Now a perfect correlation coefficient is 1.00 and no correlation is .00. I wouldn't want either. A zero correlation means that the ITPA doesn't correlate with other linguistic measures — a 1.00 correlation means it's measuring the same thing and is, therefore, not needed. I want moderate coefficients, perhaps in the .50's or .60's. The top line are ITPA's coefficients. They are moderate in size and perhaps a bit lower than expected. This may be a function of the sample. Note the correlation with MA of .53; it usually is around .65. However, for a first run, these are fair coefficients.

The difference between concurrent and predictive validity is a matter of timing.

Concurrent criterion tests are given concurrently with the ITPA and predictive tests are given some time before or after. In our case, we re-administered the criterion tests (SA) three months later and again correlated them with the original ITPA scores. They should be about the same. There is a slight, expected drop but all predictive coefficients are significantly different than zero and are satisfactory.

	Concurrent			Predictive		
	SAPR	SAWR	SAS	SAPR	SAWR	SAS
ITPA	50	47	45	39	42	36

Other criterion tests, predictive and concurrent, for the ITPA and its individual subtests were administered, and their correlational outcomes will be published.

Content Validity questions basically the validity of the items composing the individual subtests. Many questions can be asked. Are the items within any subtest qualitatively similar (all oranges)? Are the subtests themselves qualitatively dissimilar, for if they are not, we can throw out the duplicating subtests. Do the items chosen for a given subtest represent a fair sampling of all possible items of this type, for if the particular selection of items is biased, it will inflate the scores of some S's and deflate others and in both cases give an untrue estimate of S's ability. Supporting data are available on all of these points. On the matter of item similarity, there is published data on the internal consistency of the ITPA which indicates that the apples and oranges are pretty well divided into their respective bins. The heterogeneity of subtests is largely determined by factor analysis. Of four known analyses two indicate the subtests are substantially heterogeneous, one presents data pro and con, and one reports substantial homogeneity. The reason for this divergence lies in the difference of analysis methods, differences in the sizes of the groups of subjects whose scores were analyzed, differences in the ages of the subjects in the various studies, and differences in the types of subjects (normal, MR) in the various studies. My own feeling is that there is a fair degree of heterogeneity among the ITPA subtests and that the user need not be too concerned about overlap between subtests.

The matter of representative item selection within tests is sufficiently technical that a separate paper would be required to cover it adequately. It is tied to the concept of standard error and reporting test results in a range rather than a given point (e.g. Thomas scored an LA of between 5-6 and 6-8 on the VD test rather than Thomas scored an LA of 6-1). Hypothetically, Thomas's "true score" would be within the 5-6 to 6-8 range 2 out of 3 times if we gave him many forms of the same test, each being composed of a different set of items. For this reason, test manufacturers recommend the use of test ranges rather than points. SE range data have been computed for use with the ITPA and their use is recommended.

Construct Validity is an analysis of the meaning of test scores in terms of psychological concepts. One must know which factors influence test scores and which do not. This type of validity is difficult and costly to establish. Rather than experimenting in depth with one or two questions, we have chosen to do correlational exploratory work on a fairly broad range of questions. This means our answers will be suggestive only and will require further experimental support. On the other hand, we will have this suggestive type of evidence on more than one or two problems. Let me give you an example of the type of thing we are doing. The Motor Encoding Test alledgedly assesses the ability to express one's ideas in gestures and makes practically no demands on physical dexterity. Now we can administer the ME test to children along with an expressive type test and a dexterity test, forcasting a fairly high correlation with the expressive test and a zero correlation with the dexterity test. In this case the Binet Vocabulary was chosen as the expressive test and it was administered along with a peg test (how many pegs could be inserted in small holes in a minute). The correlation of the ME test with the BVT was .40, moderate and significantly different than zero. The correlation with the Peg test was .07, small and not significantly different than zero, which confirms our predictions. A fair amount of such suggestive evidence will be published. While it awaits experimental verification, it does increase the user's confidence in the test by providing more than the test constructors' intuitive guess as a basis for judment.

Diagnostic Validity is probably a special case of concurrent and other types of validity but we give it a special name and place it with the ITPA because the ITPA is used heavily for diagnostic purposes. We are in the process of making a number of tests. For example:

1. We are correlating the teachers ranking of children within her class according to her perception of their overall language ability with the ranking of these same children according to ITPA scores. Binet used this device to validate his test.

2. We are correlating the teacher's ranking of subabilities for a given child with the ranking according to the ITPA. For example, if the teacher sees ME as being a given child's best ability, the ITPA should be sensitive enough to rank it as best or at least near the top.

3. Clinicians should be able to identify the type of exceptional child by his profile. We will take about 70 ITPA profiles from various types of exceptional children and send them to persons expert in the use of the test and compare the judgments of experts. We shall also ask the experts to make the same judgments three months later to see if there is consistency within experts over time as well as between them.

4. We are obtaining test-retest correlation coefficients on various types of exceptional children to ascertain whether the ITPA is as stable over time with handicapped children as it is with non-handicapped children. Smith (1962) obtained a test-retest coefficient on MR children of .94 over a nine month test-retest period. I obtained an odd-even, test-retest coefficient of .96 with CP children over a three day interval. Additional data are being collected on other types of exceptional children with which the test will be used.

To summarize and conclude, the ITPA is being used as an assessment and diagnostic test with all types of exceptional children except the most severe. It is being employed in experimental laboratories and clinics in all the 50 states and several foreign countries. It was printed as an experimental edition in order to stimulate research and clinical usage, the data from which could be employed in the construction of a final version in 1966 or 1967. The experimental label in no way implies "tentative" or "slipshod". There is probably as much supportive experimental evidence on the ITPA as on most commercially marketed tests. As a total instrument, it is only slightly less reliable than the Binet. A monograph is now available on this subject. Within the year a monograph will, hopefully, appear reporting on a more or less systematic investigation of the validity of the ITPA. In addition a manual of remedial techniques should appear this year. A final version of the ITPA will probably not be available before 1968 at the earliest. All ITPA materials are available from the University of Illinois Press, Urbana, Illinois.

Picture plans include the possible extension of the ITPA upwards beyond its present top limit of 9 years. We have also been thinking of attempting a group ITPA which could be administered by persons without psychometric training and which could be used for screening purposes. Such a test, administered to children entering school, might detect those children who represent future remedial problems in reading, spelling and so on. Early diagnosis and remediation of basic linguistic defects might prevent later, full-blown linguistic problems.

This, then, concludes the report on one method of coping with language disorders in a modern society. To be sure, there are other promising approaches now in progress. However, those working on the ITPA sincerely hope that their efforts will culminate in an instrument which can truly be described as "used and useful" in the detection and ameleoration of language problems in today's children.

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LEARNING AND LEARNING DISABILITIES

MATERNAL VERBAL FACTORS IN A CULTURALLY DISADVANTAGED POPULATION

LeRoy Aserlind, Jr.

By now the facts, ideas, concepts and suggestions contained in the Report to the President on National Action to Combat Mental Retardation are quite well known to most practitioners in the field of mental retardation. The impetus which this report has given to investigation in many areas of retardation is likewise equally known. A portion of that report deals rather specifically with a segment of the population from which comes the preponderance of the mentally retarded youth to whom no specific genetic, hereditary, or detectable clinical entities leading to mental retardation are present. The President's Panel report states that "A number of experiments with the education of presumably retarded children from slum neighborhoods strongly suggest that a predominant cause of mental retardation may be the lack of learning opportunities or absence of 'intellectual vitamins' under these adverse environmental conditions. Deprivation in childhood of opportunities for learning intellectual skills, or obscure motivational factors appear somehow to stunt young people intellectually during their developmental period. Whether the causes of retardation in a specific individual may turn out to be biomedical or environmental in character, there is a highly suggestive evidence that the root causes of a great part of the problem of mental retardation are to be found in bad social and economic conditions as they affect individuals and families."

The Report further states that "the selective service statistics show a much heavier prevalence of mental retardation among nonwhites than in the rest of the population..." and that many regional variations among the rate of non-selectivity occur and "modern science has indicated that such variations are due to lack of opportunity rather than hereditary or mental endowment."

It was within this context that the present investigation was conceived and executed. This investigation was not intended as a final step in the solution of a problem, but rather as an initial, and at times faltering, step toward greater parameters of knowledge of the concept of "the culturally disadvantaged."

There are several points that must be stated which form the rationale for this particular investigation. The first point is that our present society is a highly literate one, one in which the verbally facile person enjoys a tremendous and pervasive advantage over the verbally inept. Conant (1961) has recently stated that the child whose experience and background have provided him with good verbal development usually will excel the verbally destitute child in almost every pursuit.

The second point, one which has been defined by Newton (1961) is that the foundation for the child's verbal development is laid subtly, yet inexorably, in the general cultural level of his home and through the language patterns of his parents and his immediate associates. This concept was expressed as long ago as 1940 by the National Society for the Study of Education "that in a literate society such as ours the greatest single external influence on the child's intelligence during his developmental years is the verbal environment in which he lives.

The third point of rationale is based on studies by Wheeler (1932), and Skeels and Fillmore (1937), etc., which demonstrated that within families living under the more adverse socio-economic conditions a sibling pattern of decreasing IQ with increasing chronological age exists. Most recently this same phenomenon was noted in a monograph by Kennedy, van de Reit, and White (1963, p. 8) in which the mean IQ of the negro child at age five is 86, with subsequent drop in IQ noted with increase in chronological age. At 14 years their sample mean IQ was 66.11.

A fourth point, and a point which is almost strictly empirical in nature, is that not all families, or more precisely not all children living under conditions of equal neighborhood socio-economic deprivation will exhibit equal intellectual deficit at a later age. Presumably then this difference might be attributable to some differences which exist within the homes from which the children come. As an initial step it was felt feasible to investigate maternal linguistic differences which might possibly account for subsequent linguistic and intellectual differences evident in their offspring, as, according to McCarthy (1954) "The mother is normally the child's first language teacher in our culture, and it is she who furnishes the example for the child to imitate."

Subjects

A series of nine contiguous census tracts lying wholly within the urban area of a large metropolitan center was selected. According to figures released by the U. S. Department of Commerce (1960) these nine contiguous tracts represented approximately 2.5 per cent of the total population of the urban area. These same nine tracts contribute in excess of 33 per cent of the total number of children enrolled in special public school classes for the educable mentally retarded in the same city. These tracts have the lowest standard of housing, the lowest median income of families and unrelated persons, and among the lowest median years of education completed. In all nine tracts the median years of formal education are between eight and nine years. All nine tracts have predominantly substandard housing conditions, and represent overcrowded home and school conditions.

For subsequent establishment of a "risk" factor mothers were (a) selected from these tracts who had (b) given live birth to an infant within the previous ten months and who (c) had older children, one of whom must have been of school age. Sixty families within the census tracts meeting these criteria were isolated, of these 60, four families were dropped because of a non-English speaking background, five families moved to other cities, five families moved from within the tracts to other parts of the city, and six families were dropped because of refusal of cooperation with the investigation. The final sample consisted of 39 families who met the criteria and who assured cooperation.

Measurements

All testing and interviewing of the subjects took place within their own homes at a time of their choosing. Demographic variables such as age, number of children, years of education, and marital status were obtained by interview. No attempts were made to independently verify the data. All mothers were administered the Wechsler

Adult Intelligence Scale; the infants were administered the Cattell Scale; children of seven years of age and older were administered the Stanford-Binet Form LM. The older children in the family were tested by means of the Wechsler Intelligence Scale for Children.

Verbal responses were elicited through the use of cards adapted for that purpose from Alexander's (1955) series of eight cards showing some aspect of adult-child interaction, and from the Thematic Apperception Test. A total of 12 cards were necessary in order to elicit the 50 responses which are considered as adequate for the measurement of verbal responses. All cards were chosen because of familiarity of scenes portrayed in which a human being was the center of interest. From these recorded responses verbal measures including Mean Length of Response, Total Words, and Sentence Complexity Score, and parts of speech were taken.

Percentage analyses were made of the subjects' complete verbal responses on the basis of the principal parts of speech. The total numbers of nouns, verbs, adverbs, adjectives, pronouns, articles, conjunctions, prepositions, and interjections were determined.

The Similarities and Vocabulary subtests of the Wechsler Adult Intelligence Scale were taken as additional measures of the subject's verbal abilities. All verbal responses were elicited and taped by the investigator and one assistant. Prompting was offered to each mother on the first three of the 12 cards. The verbal reinforcement offered on all cards presented was either "That's fine," or "That's good."

Scoring of all tests was done in accordance with scoring procedures outlined in test manuals. Scoring methods and verbal analyses were done as procedurally outlined by Johnson, Darley, and Spriesterbach (1963).

Ordering

When all testing procedures had been completed the IQ patterning of the siblings were examined. The pattern of descending IQ's with ascending CA was noted in most instances. The final rankings of the families into groups was ostensibly based on the IQ of the oldest sibling. The families which showed a markedly descending pattern of sibling IQ with the oldest sibling having the lowest IQ were classified as "High Risk" families. Families in which the sibling pattern of IQ was more or less stable, and one in which the oldest sibling had an IQ higher than the minimal requirements for mental retardation, in this instance 85, were classified as "Low Risk" families.

It must be stated at this time that the "risk" factor is largely used in an actuarial sense. The entire population from which the sample was selected was one which is statistically a population which will contribute a higher percentage of mentally retarded children to the population as a whole. In this sense the entire sample is a "High Risk" population; viz., that is there is a higher risk that a child coming from this population will be eventually regarded as mentally retarded than from a less culturally disadvantaged population. From this basic population then the sample was divided into two risk groups, one which has a "higher risk" of contributing an intellectually retarded child to society, and one group which has a comparatively "lower risk" of having a retarded child. The top thirteen and the bottom thirteen families, based on sibling IQ were used in the final analyses. All final comparisons were made between the Low Risk and the High Risk mothers of the basic population.

COMPARISONS OF HIGH AND LOW RISK MOTHERS ON DEMOGRAPHIC VARIABLES

	Low Risk	High Risk			
Variable	$\overline{X}$	$\overline{X}$	Diff.	t	P
Age	30.30	30.31	.01	.005	NS
Education	9.85	9.62	.23	.340	NS
IQ	86.46	72.93	14.53	2.970	.01
IQ Sib	96.38	70.85	25.53	8.496	.001
No. Chil.	5.46	7.46	2.00	2.224	.0

COMPARISON OF HIGH AND LOW RISK MOTHERS ON VERBAL RESPONSE VARIABLES

	Low Risk	High Risk			
	$\overline{X}$	$\overline{X}$	Diff.	t	P
Mean Length Response	12.17	8.33	3.84	4.059	.01
Sentence Complexity Score	2.32	1.76	.56	1.043	NS
Total Wds.	798	520	278	2.243	.05
Wd. Per Child Index	170.82	82.56	88.26	10.903	.001
WAIS Simil	8.54	4.08	4.46	3.253	.01
WAIS Vocab	24.46	15.62	8.84	1.966	NS

COMPARISON OF HIGH AND LOW RISK MOTHERS ON STRUCTURAL SPEECH VARIABLES

	Low Risk	High Risk			
	$\overline{X}$	$\overline{X}$	Diff.	t	P
All NS except Conj.	7.08	5.10	1.98	2.491	.05

No significant differences on personality tests as measured by Loveninger Scale.

Discussion

Results indicate that neither maternal age nor number of years of formal education are significant factors in accounting for differences of High Risk and Low Risk mothers. The data suggest that the two groups of mothers constitute a chronologically and educationally homogeneous group.

As noted, several significant differences do exist between the High and the Low Risk mothers. Three interpretations of any differences are possible. One is that the differences may be due to an hereditary differential between the two groups. The second explanation may be based on environmental circumstances, and the third on the bases of organic defects in the High Risk mothers.

Significant differences were found at the .001 level between the IQ's of the oldest sibling tested in both "risk" groups. It was along this dimension that the groups were ordered. A lack of significant differences in this variable would raise serious doubts as to the existence of High and Low Risk groups within this particularly culturally disadvantaged population. The mean IQ of 96.38 of the Low Risk group places it within the ranges of normal intelligence. It is in the middle 60 per cent of the population and approximately seven IQ points above the mean of children from low income city homes as reported in previous research. Conversely, the mean IQ of the High Risk group is 70.85 characterizing them as within the mild to moderate range of mental retardation. These children are functioning intellectually within the lowest eight per cent of the population.

Examination of the data reveals certain discrepancies between maternal and oldest sibling IQ's between the two groups. In the High Risk group the maternal IQ is 72.93 and the oldest sib IQ is 70.85, a difference -2.08 IQ points. In making the same comparison in the Low Risk group it is noted that the oldest siblings average an IQ of 9.92 points above that of the mother. This could indicate the presence of an operational factor that is present in one group but not in the other.

The finding of a greater number of children present in the high risk families is consistent with data previously reported by Nisbet (1953), Anastasi (1956) and others. An interpretation similar to that of McCarthy (1953) can be made. McCarthy states that with the increased number of children in the family, each child has a decreased opportunity of "sharing" the mother, resulting in a decreased amount of verbal attention and stimulation from the mother. These findings may imply the importance of quantitative maternal stimulation in the area of speech and language acquisition.

McCarthy (1954) has stated that no measure seems to have superseded the mean length of a sentence for a reliable, easily determined, objective, quantitative, and easily understood measure of linguistic maturity. On this basis it may be stated that the Low Risk mothers exhibit a significantly greater degree of linguistic maturity than do the mothers of the High Risk group. According to McCarthy's (1953) premise on the acquisition of speech by children, it may be speculated that the children of the Low Risk mothers can benefit from this greater linguistic maturity.

A directional but nonsignificant difference is noted in the area of Sentence Complexity in favor of the Low Risk mothers.

The significant difference in favor of the Low Risk mothers over the High Risk mothers in Total Number of Words uttered in response to the 12 stimulus cards is suggestive of a different quantitative verbal pattern between the two groups. It may be stated on the basis of the findings here that the quantitative variable is an important one; there is the suggestion that for the adequate development of verbal skills in a child minimal quantitative limits may exist.

This statistical contention that a maximal amount of individual direct adult verbal stimulation seems to have an effect on the development of verbal skills in the child is additionally borne out by the significance noted in the Words Per Child Index, which is compounded by two previously significant comparisons, but nevertheless an interesting point of conjecture.

The significant difference in the WAIS Similarities subtests which requires manipulation of verbal symbols and the abstract reorganization of information (Cronbach, 1960) in favor of the Low Risk mothers can be indicative of a qualitative difference in the ability to manipulate already learned verbal symbols in an abstractive sense.

No significant differences were noted between the High and Low Risk mothers on eight of the nine parts of speech. Interjections were included as one of the parts of speech for investigative purposes. There was a significant difference in the number of conjunctions being used by the two groups, with the Low Risk mothers using the greater number. Smith's study (1935) listed a larger proportion of connectives as being indicative of advancing speech maturity, and such might be an interpretation in this instance.

The overall configuration of maternal differences and familial intellectual development suggests the conclusion that the more verbally skilled mothers provide a more verbally enriched atmosphere, quantitatively and qualitatively. This verbal enrichment serves intellectual development in the offspring in both a facilitating and reinforcing sense. With socio-economic conditions held constant it may be concluded that the child receiving a greater amount of qualitatively adequate adult verbal stimulation has the greater probability of attaining normal verbal abilities.

The implications of the study lie chiefly in the realm of conjecture as to the efficacy of instituting early outside verbal stimulation to children during the first years of life in an actuarily and empirically demonstrated "High Risk" population.

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THE SMALL CLASSROOM —

A Developmental Idiosyncratic Approach to Learning and Behavioral Disorders in Children of Normal Intelligence

Eleanore T. Kenney

Background

The Miriam School is a private, non-profit day school for children having learning and behavioral disabilities of such magnitude that they cannot be in regular school. It is hoped that all these children have sufficient potential to be able to achieve at grade level and eventually return to regular day school.

In order to determine the optimum learning methods to be used with regard to each child, both in the classroom and in individual work, an educational diagnostic work-up is made to discover the particular child's learning profile as related to a number of sensory channels that will be described later.

Children are in 6 child classrooms under trained teachers who participate in continued training at weekly staff meetings with psychiatric and educational consultants. Additional staff includes teachers in physical education and manual training. A school social worker meets regularly with a mothers' group. The director is a clinical psychologist who is responsible for testing, diagnosis and remediation work that is continued with individual children. Twenty-three volunteers, trained in various skills, work under staff supervision to add many important extras to the program. Our population intake is limited to children between 6 and 10 years of age.

Since it is our belief that much more preventive work needs to be done with young children, we are presenting herein a study of a current classroom of 5 children who range in age from 6 to 8 years. We present the class as a whole in terms of learning profiles, with an all too brief look at the educational diagnostic procedure that determined the profiles, and then turn to a discussion of classroom and individual learning procedures related to helping the children with their strengths and weaknesses. At this time, we are midway with 5 of the 6 children since re-test of their particular profiles and abilities will not be made until later this school year. However, in one instance, we are at a re-test point and will therefore present this individual case, with the hope that we may convey a fuller impression of how we believe learning and behavioral difficulties may be succumbed.

Rationale of Educational Diagnosis

It is our belief that the assessment of learning potential should include an understanding of specific developmental lags or gaps, as well as strengths, that may be present in sensory areas. The deficits may be due to organic or environmental reasons. We are interested in etiology, but we do not want to get lost in it. As educators, our primary concern is with the behavior of the child the moment of admission to the program. The questions asked are: "Through what channels can we best approach him with formal learning?", "Through what means can we help him compensate for sensory deficits that will hamper formal learning?".

On this basis, an educational diagnosis becomes a depth charge into a child's Intelligence Quotient; a seeking to determine as clearly as possible how his mind works. In order to do this we delineate his learning profile through the assessment of the following sensory areas: Visual Discrimination and Recognition; Visual Discrimination and Memory; Visual Association; Visual-Motor Association (Body Image); Auditory-Visual Motor Association; Auditory Discrimination, Memory and Recognition; Auditory Vocal

Association; Vocal Expression. We recognize that some of these areas cross over; they are not entities unto themselves. It would be nice if they were, but knowledge derived from tests now available is not that concise. Putting together a learning profile is like putting together a jigsaw puzzle, with all too frequently, a number of pieces missing.

The parts of the jigsaw puzzle are derived from a blending of subtest results secured from the following battery: The Wechsler Intelligence Scale for Children; The Illinois Test of Psycholinguistic Abilities; The SRA Primary Mental Abilities Test; the Bender Gestalt; the Graham Kendall Memory for Designs Test; the Marianne Frostig Developmental Test of Visual Perception; the Peabody Picture Vocabulary Test; the Columbia Mental Maturity Test; Tests of Dominance and Handwriting. In addition, standard tests of Achievement (the Metropolitan and Gates) are used at regular intervals to assess achievement levels in various basic skills. We are seeking to shorten this testing program and hope that knowledge gained now will lead us to learn which of the subtests may be the best predictors for assessing specific sensory areas. The bulkiness of this diagnostic procedure is symptomatic of the early stage of knowledge and one in which we find ourselves. Consequent to this evaluation, a learning program is determined which will help a child move into formal learning as rapidly as possible. One goal is to return the child to a regular school setting as soon as his basic skills are at grade level and are appropriate to his chronological age. For fear that we may seem to be overlooking the equally important area of social behavior, the problems of emotional disturbance, a continuing goal of the program is also to build up social skills and emotional stability that will assure adjustment in regular school. Our focus now is necessarily on learning, but some mention of social skills will be made. It has been our experience that when children really start to progress in learning, behavioral problems in school can be handled more effectively.

Learning Profiles of a Class

The fall of 1963 found one of Miriam's classes with 6 children, ranging in age from 6 years 3 months to 7 years 10 months. Mental age, as measured by either a WISC or Binet, ranged from 5 years 3 months to 7 years 10 months. Only one of the six students was a girl. All but one child had previous school experience in nursery and kindergarten settings, private and public. One child had experience in a parochial first grade (accompanying chart).

A careful intake process had evaluated these children as having sufficient learning potential that they might at some time fit into more normal school settings than the classroom at Miriam. It was also true, however, that their learning and behavioral difficulties were currently of such degree that they needed a special approach. Hyperactivity and short attention span were in the symptomatology of 4 children out of the 6. The remaining two had the problem of withdrawal and consequent short attention span. One of the latter could be termed an autistic child with psychotic symptomatology (child #6).

Five of the 6 children were at a readiness point in learning. The sixth child (child #2 on chart), who had come through the Miriam retarded program, was already achieving in all skills at a first grade level. Since he is the youngster we will talk about in detail, we will not consider his learning profile nor program along with the other five. We do want to mention, however, that he was the only child whose primary strengths were in visual areas, with a major weakness in auditory channels. The remaining 5 had strength in auditory channels, with weaknesses in visual and motor areas. Profiles of four of these children were determined on the basis of the complete testing already outlined. The fifth child (#6 on the chart) was given a partial battery over a long period of time. His autistic symptomatology made testing not only difficult but also very unreliable.

All children were staffed and discussed in terms of classroom and individual approach. Our theory in planning classroom work is to make major use of sensory strengths, and to help sensory deficits where possible. Individual remediation was planned and carried out for each child with respect to weaknesses.

Classroom Program and Progress

The first month of school for the class might be termed a conditioning program. Attention span for the group was limited to five minute intervals — the goal at first was to achieve a five minute period in which all children would be focussing. Group activity at desks began with the use of the tactile sense, the identification of forms by feeling, sorting and tracing. The activities were finally directed into matching of objects of the same shape.

The remainder of the time at this early period was spent in rhythm activity, role playing of different animals and situations, and storytime. The children also participated in the regular physical education program.

As attention span lengthened and the group became coordinated, much auditory work was conducted with emphasis on rhyming. Lower case alphabet letters were taught through the use of action and picture words. By the end of October a sound chart was introduced (The Sounds that Letters Make, 1953) accompanied by pictures. A set of cards matching the letter and picture combination on the chart was made. The letter was on one side of the chart and the picture was on the other. Matching the card to the chart, with auditory stimulation, and visual stimulation involving the card in the child's hand, were processes that were initiated slowly and for increasingly longer periods each day. Number concepts were started at about the same time and manipulated such terms as large, small, equal. The Stern Blocks (1954) were used to initiate learning of number concepts. These proved to be ideal because they are large, the different quantities are of differing colors, and the children related readily to their tactile use. No actual numbers were connected with any of the blocks — learning instead came through matching like blocks, noticing blocks that did not match, feeling parts that made up the whole of another block.

Meantime, role playing and rhythm work continued and gradually the daily schedule began to shape up, with longer and longer spans of time being spent on segments of readiness work. Share and tell time, which opened the day until recently, came to be more than a one-man show, with the audience in five different worlds. The audience is still on the move, in the form of squirming, looking down, lifting desk lids, watching a leaf go by the window, but involvement in a particular child's story was evidenced in the group's questions and responses. The children came to know what to expect of each day and welcomed this approach.

I only wish I had space to describe particular behavior patterns and ways that they were, and are, worked with. You may be sure that the homogeneity of sensory deficits in the group is not also accompanied by a homogeneity of behavior patterns. I will mention only one instance, child #5. Here was a child whom we suspected knew a great deal more than he would acknowledge to us. We now know this to be true. Somehow in his brief six years of life he had acquired a resistance to letting anyone know he knew anything. Resistance took the form of continually trying to divert attention through moving into doing something else, or stubbornly insisting he couldn't do a task. Tears and temper tantrums were always close to the surface and frequently emerged. Gradually child #5 is coming to realize that it can be more rewarding to know something than to pretend not to or to defend against it. He is accepting limits and mother is beginning to realize that the stubborn temper-tantrum behavior is not an inborn thing.

In November, the Lippincott pre-primer (1963) and workbook were introduced. This series takes a predominantly phonic approach to reading and it was believed that this would be an acceptable approach with children having visual problems. The group as a whole is moving through it at a slow pace and have reached the primer level, with a sight vocabulary of 193 words. The group is now able to work for an hour (the first hour of the morning) at reading and phonics. Number work has progressed to number groupings and workbooks are now being used. Writing is progressing very slowly. The tactile method of feeling a letter, then tracing it, then writing it, was attempted with very limited success. Since all but the autistic child are quite impaired in eye-hand coordination, it was decided to wait awhile before attempting cursive writing. Meantime each child is having individual remediation in regard to copying forms as well as work in body development which would develop a sense of body-image.

The individual remedial programs for 4 out of the 5 include specific work related to areas of weakness found in the ITPA (1961), as well as body image work based on Kephart (1960) and Radler (1960). The physical education program has been concerned with rhythm work, trampoline and tumbling. The latter is the only extra curricular activity in which the autistic child takes part. He is in psychotherapy three times a week. When in focus, intellectual abilities are within the normal range or perhaps above. He is learning and learning well, with assured recall. It was deemed advisable to expose him to too many individuals for specialized work. Our main focus is to increase his interaction in the classroom and to solidify his ability to relate to his teacher.

Complete re-testing of all of these children will occur in May and we look forward to learning on a quantified basis the progress in sensory areas and formal learning that we have seen emerge from day to day. As previously noted child #2 on the chart has been in the Miriam program sufficiently long to have test, re-test results. In conclusion we should like to turn attention to his achievement record and the sensory shifts that have occurred in his learning profile since January of 1963.

Child #2: Billy is a stocky, blue-eyed blond boy, large for his age, now 7 years 7 months. When first admitted to Miriam at 6 years 2 months, he was unable to relate to other children, lacked impulse control and resorted frequently to hyperactive behavior. Speech was limited and the only expression that came readily was "shut up." An alternate expressive habit was to bark when pressure became too much. Testing Billy had always been difficult and the speech deficit made previous Stanford Binet IQ results (ranging from 59 to 75) poor indicants of potential.

No testing was carried out at Miriam until January 1963, at which time Billy had begun to show normal learning potential in visual areas. He was moving easily into pre-primer work on a "Look-Say" approach and was showing unusual ability in grasping number concepts. He was beginning to relate to children and adults. It was decided that he might have sufficient potential to move into Miriam's new program for children with possible normal potential.

It was at that time that as full a battery of tests as possible was utilized. Billy was not an easy child to evaluate due to fluctuating ability to focus and also because of the threat he felt in a one to one situation when a demand was made on language. However, we were able to pick up significant cues concerning his thinking processes and why he was moving along so well in formal learning. A look at his profile of that time shows us that major strengths were in visual areas: memory, association and ability to identify similarities and differences (ITPA). The Columbia Mental Maturity Test showed almost normal ability to abstract on a visual basis. Major weaknesses were in expressive areas, motor and vocal. Weaknesses were also present in auditory channels to such an extent that we questioned if the impairment in ability to understand was of such magnitude that compensatory factors were involved (Peabody Picture and Auditory Decoding). At that time a program was planned to work with strengths in the classroom and to stimulate deficit areas in individual work. In June 1963, he was able to read and comprehend at a solid first grade level, and he was capable of handling arithmetical concepts above the 2nd grade level. Chronological age was then 6 years 11 months. It was decided to admit him to the new Miriam program. We presented a realistic picture to the parents by outlining the manner in which Billy seemed to be compensating for his sensory handicaps.

We entered a questionable prognosis for his eventual placement in regular school.

His inclusion in the class of children you have already heard about presented teaching difficulties. Billy still needed much help in social areas, in ability to withstand stress and in ability to express himself. We knew he needed experience with children his own age and with children with more nearly normal potential than his previous experience with a retarded class. Our class was ideal for him in these respects. We, therefore, tailored a program for him that reversed our usual theory of working with strengths in the classroom and weaknesses on an individual basis. He was far ahead of the group academically and yet, in reality, was a much more multiple-handicapped child. This academic prowess has stood him in good stead in the group and he is, for the first time in his life, achieving maximum success. Reading and arithmetic are carried on outside of the group. Billy is working with a 2nd grade reading group in another classroom and has individual reading lessons twice a week. Arithmetic lessons are individually given, with consistent workbook activity carried on with the help of a classroom teacher. He is also receiving individual speech lessons that are planned to increase his flexibility in sentence structure by expanding his vocabulary. Work in body development continues on an individual basis. Individual remedial emphasis related to deficits as measured by the ITPA has been on Auditory Decoding, Vocal and Motor Encoding and Auditory Sequencing. Meantime the classroom experiences with heavy emphasis on auditory channels, eye-hand work, motor and verbal expression are stimulating these deficits for him.

What does his sensory profile look like today? Space does not allow for a full discussion of subtest findings as they interrelate to reveal current deficits and strengths. A graph representing comparisons of 4 of the major tests administered a year apart (January 1963, re-test in January, 1964), seems to indicate the following: His intelligence Quotient remains the same. In 1963 it was based on a Stanford Binet, in 1964 a Wechsler. Previous testing on the latter test was not possible. His present scale IQ is 77 and is identical with the Stanford Binet results. Verbal and Performance IQ's are 80 and 81 respectively. Subtest scatter ranges from scaled scores of 4 through 12. Billy became very negative during the administration of the Wechsler. The standardized form of demands on verbal and motor areas was most upsetting to him. Also, in many ways Bill's fund of knowledge is very similar to that of a deprived child, though he comes from a high socio economic background. Only recently have the parents responded to him as a person. They are taking him out into the community with the realization that he is not an autistic child but rather a child with whom they can communicate and relate.

The real cues to his present learning abilities appear in a comparison of the shifts that have occurred in the Peabody Picture Vocabulary Test, the Columbia Mental Maturity and The Illinois Test of Psycholinguistics. The general statement can be made that there have been noteworthy increases in auditory areas, with visual areas either remaining about the same or decreasing. It has been the experience of others (1963), that work with deficits alone results in significant loss in strengths. We do not feel that this is the case with Billy. Both strengths and deficits have received much emphasis during the past year. It is our hypothesis that what we see in this profile is consequent to increasing integration of learning processes, plus variability in performance in visual areas (described below).

There is no longer any question about his potential to decode on an auditory basis (ITPA + Peabody Picture results), to remember auditory stimuli (WISC Digit Span of 12, ITPA Sequential -.87 Standard Score). Expressive ability, both vocally and motorically, rose significantly. His awareness of and ability to use grammer and syntax (Auditory Vocal Automatic) rose significantly. His ability to relate ideas on an auditory basis indicates an increase but it is not significant (Auditory Vocal Assoc. ITPA). His scaled score of 4 on the WISC Similarities test lends further confirmation to this deficit in higher thought processes. Visual associative ability is also limited (significant decrease on ITPA Visual Motor Association: WISC Block Design=6, Picture Arrangement = 7;

Cal. Mental Maturity=77).

In the visual areas we are becoming increasingly aware of a great variability in responses to visual stimuli. A cue to this seems to be found in the Frostig Form Constancy test results which found him with a perceptual age of 3 years. He responds easily to small details (WISC Picture Completion score=12) but cannot see the whole of an object or pattern as assembled from parts (WISC Block Design=6, Object Assembly =6). Yet in Spatial Relations (Frostig Position in Space, Spatial Relations) he performs at age level, and in immediate visual memory (ITPA Visual Motor Sequencing) performance is above age level. Visual strengths are so interlaced with weaknesses that they may be reflected in his inability to abstract at the higher and less concrete levels required by increased chronological age.

Achievement at the present time in basic skills includes the following. He is reading and comprehending in a 2-2 reader with a recent Gates Paragraph Meaning Test finding him at grade 2.5. Sight reading is well above 3rd grade, but we are carefully holding classwork to a level where comprehension and sight reading are comparable. Arithmetic is at a 3rd grade level and he exhibits a firm grasp of number concepts. Handwriting is good.

We are now ready to change our remedial program for him placing particular emphasis on stimulating his auditory and visual abstracting ability, which will also include continued work on developmentally appropriate motor and vocal encoding tasks. The prognosis for Billy is certainly not assured. We continue to find him an exciting child to work with, far more exciting than one could possibly have thought when he so clearly and pathetically told everyone and everything to "shut up" in September of 1962. Flexibility in language is still not present and ability to withstand stress, though increased, is limited.

It is significant, however, that of the entire class of 6 children, he is the child having the lowest IQ as well as the highest level of achievement in basic skills. He is also the child with greatest comparative strength in visual-motor areas. He is atypical in the class. This fact brings us to a final question. Why is it that the major portion of this class of 6 to 8 year olds has primary weaknesses in visual-motor areas; who have been unable to make progress in regular school? This is a limited sample but an important one. The remaining five children come from three school districts; districts that are quite imaginative in approach to children who can't make the grade in early years. It is important to recognize that the significance of visual-motor areas is of such magnitude that, even though a child may measure well into the normal range on IQ tests, he may have difficulties on the basis of regular school teaching methods. These are children who would falter by the way, yet they have many strengths and considerable potential. Much research needs to be done in regard to all aspects of working with such children: educational diagnosis, learning methods and assessment. We should like to suggest that such deficits are identified prior to or upon entry into kindergarten with specific goals outlined for each child. It will do no good to cast such children into an ungraded primary system, and results will be even less hopeful when they are picked up on a remedial basis at a 3rd grade level. The emotional overlay is almost insurmountable by that time and the prognosis equally unassured.

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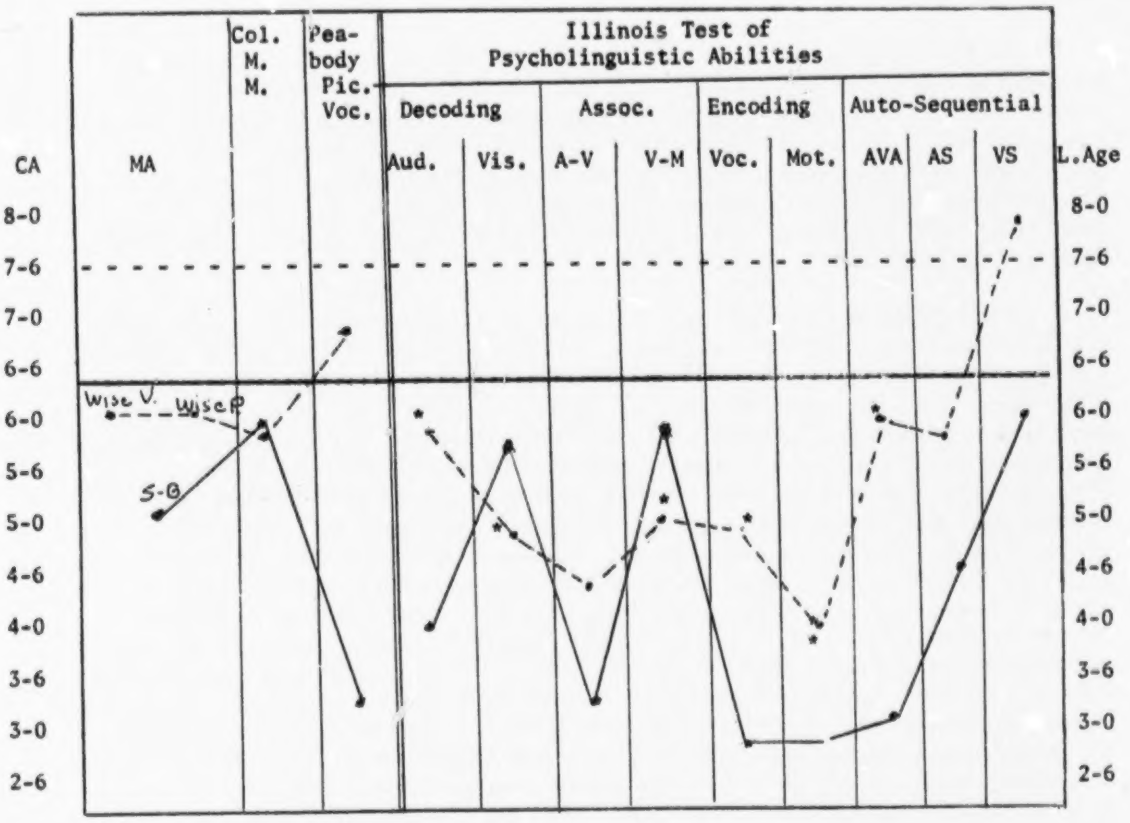
Child #2



——— = Test Scores 2-63 CA = 6-6

- - - - = Test Scores 2-64 CA = 7-6

* = Significant Shifts in ITPA Scores

MRS. FINLEY'S CLASS November, 1963

Student	CA	MA	IQ	Learning Assessment		Achievement Test October, 1963	Previous School Experience
				STRENGTHS	WEAKNESSES		
#1	8-0	7-8 6-4	94 (S-B) 77 (Wisc)	Motor Expression Auditory-Visual Assn. Auditory Assn.	Visual Association Visual Memory Visual Motor Auditory Memory Vocal Ability Spatial Concepts Short Attn. Span Great Hyperactivity	Met. Readiness Reading= High Normal Numbers = Average	Kindergarten & 1st grade in regular Parochial School
#2	7-5	5-10	77 (S-B)	Visual Assn. Visual Memory Auditory Visual Assn. Auditory Memory Vocal Ability Spatial Concepts Good Attention Span Hyperactivity Diminishing	Visual-Motor Motor Expression Auditory Assn.	Met. Ach. Primary I Reading= Grade 1.6 Numbers= Grade 2.0	Public School Kindergarten Miriam Retarded Program Miriam Norm. Program
#3	6-8	6-9	101 (Wisc) V=96 p=106	Visual Assn. Auditory Visual Assn. Auditory Assn. Auditory Memory Vocal Ability Spatial Concepts	Visual Memory Visual Motor Motor Expression Short Attn. Span & Hyperactivity	Met. Readiness Reading= Average Numbers= Superior	Private Nursery School

MRS. FINLEY'S CLASS November, 1963

Student	CA	MA	IQ	Learning Assessment		Achievement Test October, 1963	Previous School Experience
				STRENGTHS	WEAKNESSES		
#4	6-11	6-8	96 (Wisc) V=97 p=94	Visual Assn. Auditory-Visual Assn. Auditory Assn. Auditory Memory Vocal Expression Fair Attn. Span No hyperactivity	Visual Memory Visual Motor Motor Expression Spatial Concepts	Met. Readiness Reading=High Normal Numbers=High Normal	Public School Kindergarten
#5	6-5	5-3	80 (S-B) (Inc.)	Auditory-Visual (?) Auditory-Assn. (?) Vocal Ability	Visual Assn. Visual Memory Visual Motor Motor Expression Auditory Memory Spatial Concepts (?) Very short attn. span Hyperactivity & Stubborn behavior pattern	Unable to test fully	Private Nursery Schools
#6	7-9	?	?	Visual Assn. Visual Motor (?) Motor Expression Auditory Memory Variability in Attention Span Not hyperactive when he is in contact	Visual Memory(?) Auditory Assn. (?) Vocal Ability (?) Spatial Concepts (?)	Not testable	Private Nursery School

PUPIL MOBILITY AND ITS RELATIONSHIP TO LEARNING

James L. Lehman

The Problem

Every year in the past decade, 1950 to 1960, approximately one out of five persons has changed residence at least once in the United States, according to United States Census Bureau figures. Many of these are school age children. Because of residential movement the children would have had to change their school addresses. It seemed reasonable to assume that some disruption would occur in the life of the child because of this movement. Perhaps the school life of the child was affected.

Background of the Problem. A study of pupil mobility should take into consideration one of the major influences in the shaping of the American culture, its mobile population. The mobility of the people of the United States has followed three main directions. The first was the great westward migration which populated our nation from sea to sea in a little over a century. The second was the movement of people from rural communities to urban centers. In recent decades a third movement from the rural south to the industrial north began. This movement was somewhat different from the general rural-urban movement (C. F. Senior, 1961).

The newer migration of people from the rural south to the industrial north has been receiving greater attention in metropolitan communities. A related and growing area of concern has been the residential mobility within the geographic boundaries of the larger cities. Chicago has recognized the situation for some time by creating special agencies to deal with in migrants. One of the agencies, The Chicago Commission on Human Relations, predicted that movement to Chicago and within Chicago will continue for some time to come (Write, 1959). The Great Cities School Improvement Studies, as early as 1957, concerned itself with the children who had "in migrated" to the large cities. "The concentration of these in migrant youngsters in certain schools, in certain courses may have dramatized the importance of the in migrant problem, which is all to the good and at the same time given erroneous impressions of its size. One thing is clear: It would appear desirable to get a more complete picture of the real situation than was obtained" (Mort, 1957).

Significance of Mobility to Educators In educational literature, the movement of children from school to school is referred to as "Pupil Mobility". Despite a paucity of literature on the subject, this research seeks out knowledge concerning the nature and extent of pupil mobility, in the belief that it should be of interest to administrators and to teachers.

The effects of school movement by pupils are well known to administrators who are familiar with many classes swelling to unmanageable size by an influx of additional pupils. This places a strain on the teachers and disrupts the work of the pupils who have begun their year's studies. When children transfer from school to school, it does not follow that they take up, in the new school, at the same point where they left off in the previous classroom. Thus the teacher must maintain the level of learning reached by the stable section of the class, while attempting to orient the newcomers, either by additional instruction to help them catch up, or by review to hold their interest.

Significance of Mobility to Pupils In an effort to determine and pinpoint some of the effects of mobility on pupils, an examination was made of the literature as well as a large number of school histories of children. Many have suffered interruptions in their school lives by moving from school to school. Could the frequent moving from school to school, from neighborhood to neighborhood, from community to community prove to be directly related to the learning of mobile children?

Purpose of the Study This is a study of one aspect of America on the move; a study of a part of America of the late 1950's and early 1960's moving north, moving from state to state, moving within one state, moving within a particular city from one neighborhood to another. More particularly, it is a study of one small segment of that moving population: its school children who must move with their parents, and having no other choice change communities and schools many times in their short lives, sometimes many times within a single year. It is the purpose of this study to attempt to see what this constant change does to these pupils; what relationship, if any, mobility has to their learning.

Areas Covered in the Study In an effort to determine whether student background — of foreign parentage or American — had any bearing on the frequent transfers from school to school this study collected facts concerning birthplace, of both children and parents. Among the American-born were placed children, and/or their parents, born in Chicago, in Illinois, in the Southern states, or in other areas. Since a high proportion of the migrant students appeared at the outset to be among the rural southern shifting population previously mentioned, it seemed interesting to determine exactly how high this proportion was in actual fact. Among the foreign-born children, and/or their parents, a distinction was made whether these persons were born in Europe, or the Orient, or in Latin America, or other areas.

From dates of birth of these pupils, in school records, it was possible to collect as to the age of the pupils with a view to its relationship with mobility. The pupil records were carefully checked to determine the actual numbers of moves from school to school that had taken place among the children. Each school move was counted by using the number of schools listed; this gave a good measure of the extent of pupil mobility, individually and collectively, for the purpose of this study. These school moves were counted as they took place from one state to another, or within one city.

Intelligence quotients were studied, along with chronological ages at the time of testing, for these pupils. Reading and arithmetic tests were studied, and the results of these achievement tests were carefully scrutinized for the picture they contributed of the abilities of these pupils.

Particular schools were also used in this study for an overall picture of their mobility rate. The result of this aspect of study indicated that certain communities had a more mobile, or changing, population than others.

This study should help to open a newer area for further, hitherto untouched, research on an aspect of the interesting subject of pupil mobility and some of its reported effects on a community, its schools, and the pupils themselves.

Review of Related Literature

This review of related literature presents the research dealing with intelligence and achievement of school age children, particularly as it might relate to pupil mobility. Cultural differences, minority groups and social adjustment studies relating to mobility were also included. Studies dealing with immigrant and migrant groups were cited for a more complete understanding of the mobility question.

No study was found which examined the problem with which the present research was concerned. The problems of a mobile population have been the topics of many studies and articles in such fields of study as sociology, economics, history and psychology.

Effects of Social Mobility Mobility in the past has been a problem for study primarily by the sociologist. A rather extensive body of literature has been developed on the subject in this field. Sociologists have concluded that people may be and often are anxious to move to a higher social and economic level. Quinn (1950) observed in his resume of mobility research, that most of the literature dealt with social mobility or the effects of mobility on social and personal organization or disorganization.

The Family's Effect on Educational Aims Kahl (1961*) reported the results of his study which indicated that intelligence quotients and family status were useful predictors in the educational and occupational ambitions of pupils. A follow-up interview disclosed that there was a general way of life which was identified as a "common man social class." Some members were content with the way of life designated as the "common man class" while others were not. Discontented parents tended to train their sons from the earliest years of grammar school to take school seriously and to use education as a means of becoming part of the "middle social class." Only those sons who accepted such values, however, were sufficiently motivated to overcome the obstacles which faced the "common man" boy in school. "If a common man family does accept the myth ('the Horatio Alger myth; the American Creed is supposed to teach everyone that he can become President — if not of the United States then of United States Steel') and has sons who show in their early school performance signs of talent, then they push him forward and encourage him to climb. The schools are more the means than an initiator of ascent."

Individuals in the field of sociology have studied the problem of mobility as it relates to social and economic structure. Cogwell (1935), in *Residential Mobility of an Urban Population,* observed that residential mobility was negatively correlated with economic status as measured by rent, value of home, and tax returns. He reported high positive correlation between mobility rate and place of residence. High correlations were found between residential mobility and the percentage of multiple dwellings, and between residential mobility and illiteracy. A high, negative correlation was found between well established family life (as evidenced by the proportion of the males married, and balanced sex ratio) and the percentage of single family homes.

Mobility and Pupil Adjustment A study of social acceptance and adjustment was made by Matlin (1954). He concluded that the "permanent" pupils were accepted best in the classroom and were best adjusted socially. He defined "permanent" pupils as those who had moved twice, once, or not at all during their five or six years of school life.

Mental Mobility Freedman (1950) in his study of the characteristics and distribution of in migrants to Chicago, found that both native and foreign born were not concentrated solely in the central areas of the city, long identified as a port of entry for foreign immigrants. The "Migrant Zone" which he delineated was found to exist in areas extending from the "Loop" along the "L" lines. These "Zones" contained a relatively high proportion of apartments in multiple dwelling units, or "rooming houses" which were rented furnished, and contained one or two rooms. He concluded that the location of migrants in such areas was a function of "mental mobility," which included, among other things, possession of few household goods, ready access to inexpensive transportation, and orientation to places of work.

Migration Myths Drake (1960) in a paper entitled *Migration Myths* explained three major myths associated with migration of peoples, especially minority groups of one kind or another. The first theory was "selective migration." This concept may mean that the more intelligent members of a sub-culture seeking economic opportunities leave behind less able and less intelligent members. The theory may be reversed, according to Drake, to say that the duller members leave while brighter ones stay at home. A second migration theory, called "in-breeding" held that inter-marriage between close relatives supposedly takes place among lower economic groups, especially in rural area groups. According to this theory, "in-breeding" produced a weakening of the strain, with an alleged rise in the number of mental defectives. A third theory falls back on the racism theory which contended that some groups were "naturally" superior while others were inferior. These "myths" Drake claims, have been popular at various times in United States history.

Drake's (1960, p. 5) conclusions were quite interesting. "As far as can be discovered in research literature," he said, "no valid evidence has been offered to substantiate the selective migration hypothesis. Until such evidence is available, selective migration should be regarded as part of the folklore of migration, without validity in making decisions about migrants." Evidence seemed to indicate that while "in-breeding" does occur, "it is much rarer than generally supposed, and there is little or no evidence to indicate that it produces lowered intelligence or achievement when it does occasionally occur. Until evidence to support the weakening of the strain through in-breeding theory is forthcoming, it can best be regarded as a migration myth" (Drake, 1960, p. 6). He strongly opposed the theory of racial superiority on the basis of research findings. Whenever a socially limited low IQ group gained access to greater educational resources, "the IQ almost always goes up... therefore, in the absence of data that would tend to prove the intellectual inferiority of any particular groups, we must regard the theory as a myth" (Drake, 1960, p. 7).

Differences Between Mobile and Stable Pupils Cultural shock or the disruptive character of mobility was emphasized in many studies made by sociologists on the effects and causes of the movements of migrating people. Educators seemed to have centered their studies around the social aspects of mobility, i.e., the effects of mobility on the child's social adjustment. They and other social scientists have investigated the acceptance of the mobile child by his superiors and his social adjustment to school. Beech and Beech (1937) studied child behavior as it is affected by transiency. Two groups were compared — "all transients" and "most movers." Among the pupils who had moved most, approximately twice as many were judged by their teachers to have poor attitudes toward other pupils, toward school, and toward the teachers.

Downie (1953) made a comparison of mobile and stable children. Students with the highest rate of acceptance by other students (their peer group) were those who had lived in the town for about three years. Recent newcomers and "old" residents scored lower on tests for various factors of adjustment. The possibility exists that migration creates a "cultural orphanism" (having no "cultural roots") among children — "a state several child welfare workers claim to have found" (Drake, 1960, p. 9).

Cultural Difference May Affect Intelligence Quotients The findings of research seemed to indicate that children begin school with approximately the same range of intelligence, no matter what their ethnic background. Educational writers generally accepted the notion that intelligence quotients usually vary ten points during a pupil's span in school. There was some evidence, however, that limited cultural opportunities may lead to a lowering of intelligence test score as the child grows up. Garth and Johnson (1934), for example, found that among the Mexican population in Texas and New Mexico children of cultural limitation had normal intelligence quotients in the first grade, but the intelligence quotients decreased as the children grew older.

Skeels and Fillmore (1937) found this same characteristic among orphanage children, and Haught (1934) ascertained it again among the Indians of southwestern United States. Studies of southern children found the same pattern. Sherman and Keye (1932) reported a similar occurance among the "hollow" children in Virginia.

Minority Groups and Cultural Environment Effects The effect of cultural background on reading was studied recently by Similanski (1961). She reported that the reading and arithmetic achievement of Israeli primary children reflected to a considerable degree the effect of cultural standards in countries from which their parents came. Children of parents from culturally underdeveloped countries achieved less well, and showed more difficulty in reacting to school success and failure than did children of parents from culturally advanced countries.

In the United States the relative performances of sixth grade pupils of Anglo, Spanish-American, and Indian ethnic groups in an Idioms test were investigated by

Yandell and Zintz (1961). They found that minority groups differed significantly, from each other and from Anglo control groups, to the disadvantage of the former. These findings lent support to the belief that minority groups in the American culture may experience considerable difficulty in understanding American idiomatic expression.

Snider (1961) conducted a comparative study of aculturated Nez Perce Indians and white senior high students. Cooperative tests in reading comprehension were used. No significant difference between the two groups was found, thus suggesting that "similarities in factors of age, and degree of aculturation may be more important in such comparisons than ancestral background."

Intelligence test scores may be influenced somewhat by social and economic changes in the group. In a study that centered in Washington, D. C., Long (1934) found that the intelligence quotients of migrants did not stabilize until they had lived in the city about eight years. Lee (1951) found the same evidence in Philadelphia. Neither study was concerned with pupil movement from school to school.

Garth's study of Indian children adopted into white families showed the upgrading of intelligence quotients among children when they were given access to educational opportunities. Rohrer's (1942) studies of Osage Indian children, in families where income from oil wells enabled them to achieve a higher educational level, showed that Indian intelligence quotients were at or above the white norm when the Indian children had equal opportunity for social and educational development. Davis (1948), in his book, Social Class Influences Upon Learning, felt that more equal opportunities produced more equal intelligence test scores. One of the most dramatic examples cited by Davis as well as by Drake was the rise of intelligence test scores of Negro men between World War I and World War II. Negroes generally scored lower than whites on army tests during the first World War. But, in World War II, northern Negroes scored higher than southern whites.

Adjustments of Mobile Population Intelligence and achievement test scores may be influenced by attitudes of parents as well as by social and economic structure. Family attitudes toward education may also affect attitudes toward learning. Youmans' (1959) study relates to these research problems as he discussed the mobility plans of pupils (Kentucky Rural Youths). Two thirds of the youths interviewed reported that they planned to settle eventually in the county where they now lived. One third said they expected to move. The largest percentage, when asked why they would prefer to move from this country, said "they would leave to get jobs." An almost equal percentage said they found it dull where they lived and that there were not enough things to do. More boys than girls said they planned to leave the county "to get jobs." Forty-four per cent of the youths planning to leave the county said they expected to move to a city; forty-four percent said they "didn't know" where they were going to move; and twelve per cent planned to move to another county.

Youths who dropped out of school did not evince any greater desire to migrate than did those currently enrolled in school. (The "myth" that the more capable and the more intelligent youths tend to migrate from rural areas to urban communities was not supported by the evidence in this study). Mental ability test scores were not a factor nor was the family social-economic status a factor in the desire to move.

"Youths from rural families of high social-economic status made better use of educational opportunities than did youths from lower social-economic status groups" (Youmans, 1959, p. 44). This quote appears to add to existing evidence that differences in social and economic background may be associated with differences in the educational plans and ambitions of the family and its members.

In an article in the American Sociological Review Brown (1952) analyzed a Beach Creek neighborhood in the Kentucky Hills. He found that Beach Creek people ranked themselves into classes or prestige groups. Brown's grouping of these people into high, intermediate, and low class groups agreed with the evaluation of the people themselves. He noticed a common trait in the people of the Beach Creek neighborhood, as well as in the Kentucky mountain area as a whole. Hostility was evident in quarrels, bickering, and malicious gossip, as well as in actual physical conflict between the groups and individuals within a group. This could cause problems in an urban society for the southern white. Brown suggested that a family group moving to a large city needs help in "repressing hostile desires toward members of one family and family groups, the most important groups in the society, and (the repression) may result in frustration and the transfer of aggression to people outside of these groups; and one of the outside groups could very likely be the schools and the teachers and the students in them."

Rural to Urban Adjustment Patterns The conclusions of another migration study by Martin (1958) revealed that off-farm migration was closely associated with age, opportunities on the farm, and information about non-farm job opportunities. The importance of job information as a factor in migration is indicated by the close tie-in between neighborhood groups in Weekly County, Tennessee, with certain industrial labor markets in the far central region of the United States. Once a few migrants established entry to these distant cities, friendship and kinship ties provided the channels of employment information flowing back to their friends in the neighborhood. The relationship between formal education and migration was not consistent over time. Better educated children tended to migrate to non-farm work in the years before World War II, but young people of all degrees of education, or lack of it, migrated in the years 1946 to 1951.

Age was the chief selective factor in off-farm migration found in this country. This resulted in a large number of the young people being drawn away, leaving the farm population weighted with older people. The study suggested that those in the lowest income farm group tended to leave for non-farm employment first. The general movement of farm labor was from the lowest level of farm employment, to better farms or to non-farm occupations. Martin thus concluded that people under the greatest economic disadvantage in agriculture tend to leave faster than others.

In Smith's (1953) study of rural migrant workers and their adjustment to an urban setting, he concluded that:

> Southern whites' pattern of adjustment contrasted sharply with northern whites and southern Negroes...their (southern whites) particular habits and values make adjustment slow and incomplete. As a group, they are definitely stereotyped with undesirable characteristics.
>
> Northern whites are rapidly assimilated. No identifiable communities of northern white migrants were found in Indianapolis.
>
> Both the observation of local people and the evidence of friendship ties are indicative of the extremely rapid and complete adjustment of southern negro migrants to the life of the northern urban center.

The education level of migrants among the three groups studied was varied. "The median highest grade completed was 6, 7, and 8 respectively for Negroes, southern whites and northern whites (Smith, 1953, p. 71). Fifty-six per cent of the migrants (Negro, southern white and northern white) expressed a definite desire to stay in the city (Smith, 1953, p. 98). Decisions of individual families to migrate substantiated Martin's findings. Smith discovered that family and neighborhood ties between those who migrated and those "back home" influenced the stay-at-homes in their final decision to migrate.

Smith (1953, p. 152) also confirmed a statement made in practically all of the literature on population movement. The vast majority of people moved for economic reasons. He also stated that the "southern whites in Indianapolis tended to rate their urban homes as superior to what they would have had in their home community."

Effect of Mobility on Achivement The effect of frequent school change on the achievement of children of military personnel was studied by Farner (1961). His sample included 438 children in grades three through eight. Achievement was measured by the appropriate level of the California Achievement Test. The ability level of the total group "was generally high" according to Farner. His conclusions are important to the achievement portion of this study. The relationship of frequency of school change and arithmetic, mechanics of English and grammar, spelling as well as the total test were very low. Correlations generally were positive. The highest correlation was .36, but most correlations were below .20.

> While the results of this study certainly do not support a contention that frequent school change is associated with higher achievement, the results do serve to partially contradict the commonly held belief that the opposite is true. Among the very unique group of children studied, the frequency of school change inherent in the employment of the father was not a cause of academic depravement of the children.

Effects of Mobility Rate Sexton (1959), in her study of Social Class and Pupil Turn Over Rate completed a tabulation of these transiency rates, according to family income in an unidentified school area. Her study showed evidence that there was a very close relationship between turn over rates, or high mobility, and family income. For purposes of her study, family income was also described as social class.

As family income decreased transaction percentages increased. Transaction percentages were computed from the number of pupils who had entered or left school during one semester. The opposite is true when family income increases. For example, a family income of $3,500 brought about a transaction percentage of 59.6 percent. On the other end of the scale, a family income of $11,055 brought about a transaction percentage of only 13.1 percent.

Sexton also found that losses from school, that is pupil dropouts, because of long term illness, occured twice as frequently in the lowest income group as in the highest. She considered this a reflection of improper nutrition and lack of medical care given to children of lower income families.

The School's Role Conclusions of the Sexton (1959, p. 132) study were important and have great implications for this study of pupil mobility.

> There would seem to be little that the schools, by themselves, can do to decrease these excessive turn over rates in lower income schools. Even if it were possible to influence these rates, it might not be desirable to do so. These low income families sometimes move from one area to another for very good reasons — to obtain better housing — and, under present conditions, transiency may be the best solution for them. But, if the schools cannot or should not influence these rates, they can at least accommodate themselves to the burdens that are imposed on the students and teachers by these high turn over rates... Teachers in low income schools often have somewhat larger classes than teachers in high income schools. In the elementary schools of the large city from which these transaction figures were taken, there were more students per class in the lower than in the higher income schools. (In schools with family incomes below $7,000, 30.6 pupils were in each class. In the above $7,000 schools, the average was only 28.8, a difference of almost 2 pupils per class.)

Senior (1961, p.p. 12-13) sums up the immigration and migration of people of the United States when he said:

> Each recent year, some 30,000,000 persons have moved; about 5,000,000 across county lines and about 5,000,000 more across state lines. Two out of five of the latter moved across regional lines also. Furthermore, the process had been speeding up even before World War II. The total moving from one county to another in the decade 1921-30, for example, was only 9,000,000; during the five-year period 1936-40, it had risen to 14,000,000.
>
> Ambition, hope, courage and differential economic opportunities are the four major ingredients in the voluntary movement of peoples from their native soil to new and strange areas. The 41,000,000 immigrants of the past have written this lesson large on the pages of our history. Their coming sometimes overshadows in our minds and in public discussion the fact that we were a century ago — and still are today — a people on the move... We seem to be at least as mobile as our ancestors were a century ago, during the great Westward Movement.

The extent of population mobility is represented in the following table. It shows almost one out of five persons in the United States changing residence each year.

MIGRATION WITHIN THE UNITED STATES *

1950 to 1958

Year	Total No. of Persons	Within the Same State	From One State To Another
1950-1951	31,158,000	25,970,000	4,188,000
1951-1952	29,840,000	24,728,000	5,122,000
1952-1953	30,786,000	25,264,000	5,522,000
1953-1954	29,027,000	23,993,000	5,034,000
1954-1955	31,492,000	26,597,000	4,895,000
1955-1956	33,098,000	28,045,000	5,053,000
1956-1957	31,834,000	26,758,000	5,076,000
1957-1958	33,263,000	27,679,000	5,584,000

* U. S. Bureau of the Census, Current Population Reports, Population Characteristics: October 13, 1958, Series P-20, No. 85, pp. 8-9.

Summary

An examination of related literature revealed several facets of the mobility question. The following observations appeared pertinent and have implications for this study:

1. Residential mobility in the United States has been high. One out of five persons has been on the move every year.

2. Sociologists have concentrated on social mobility, and have concluded that people may be anxious to move to a higher social and economic level.

3. The family may affect the attitudes of children towards learning. Socio-economic status of the family may affect these attitudes. Sufficient motivation may be needed to overcome obstacles facing "lower class children." Education may be used by the family to rise to a higher social and economic level.

4. Residential mobility was related to economic status.

5. Permanent pupils were found to be best adjusted socially in several studies. Children who move several times from place to place may exhibit signs of "cultural orphanism."

6. Certain migrant groups tended to locate in selected areas in a city. This may be a function of "mental mobility."

7. "Migration Myths" have been associated with people who move.

8. Membership in minority groups and/or cultural groups may affect the results of their intelligence and achievement tests. Educational opportunities may affect the results also.

9. Evidence indicates that intelligence quotients may decrease and increase because of urban and rural environments.

10. Intelligence quotients may be affected by social and economic changes in a group of people.

11. People changed residence mainly for economic reasons.

12. Lower class persons moved more often than upper and middle class persons.

13. Northern whites' rural to urban adjustment patterns tended to be faster and more complete than the Southern Negro. Southern whites tended to make slow and incomplete adjustment to Northern urban centers.

14. Achievement of children of military personnel were not adversely affected by moving from school to school, as measured by the California Achievement Test.

15. Mobility rates in schools have a close relationship to family income and family class.

Implications

The implications emerging from this study are profound in their pointing up the need for new knowledge, a few of the inadequacies of present school programs, the importance of better use of community resources and established agencies in meeting educational challenges, and the specific, urgent need to develop instruments to analyze and research cultural and class influences. Cultural factors and class factors, it can be assumed, account for one of the most important findings of this study — the fact that mobility apparently has no appreciable effect on important variables by which we judge educational progress as revealed in the lack of high correlations in this research.

Unquestionably, the schools have a role to play in aiding the social adjustment of mobile pupils. Certainly, the schools can do very little in a positive way about the moving of pupils from school to school. Few would wish to retard the opening of new schools simply because it would cause mobility.

Mobility has presented to the schools and the community the task of helping students and their parents adjust to urban life. More effective and coordinated use of all community agencies ought to be brought to bear on mobility — related problems of social adjustment. For instance, most of the pupil referrals to outside agencies for misbehavior of the age group in this study came from the schools.

One of the major problems faced by Mobiltown (and perhaps other similar communities) is the coordination of all of the services and agencies in the community. The schools could provide more services as a formal referral agency for other agencies. Without proper coordination, these facilities and abilities could be wasted.

The profession should not feel a sense of guilt (as many teachers and principals reveal) about the poor academic achievement and equally poor academic adjustment of the pupils who move from school to school. Many educators agree more provisions should be included in the school program for helping to meet social adjustment problems. It is safe to assume that many of these problems are mobility connected. Chicago schools with high mobility should have more services from special teachers (such as experts in emotional adjustment, reading, counseling) and assigned attendance officers. Pupil-teacher ratios in this and other studies were shown to be higher in the school with high turn over ratio. Class sizes are another common subject for discussion which should never be evaluated without reference to mobility and pupil turn over considerations.

Since the relationship between mobility and other factors is low throughout this research, it would appear to destroy some arguments suggesting a national curriculum. Those who advocate a national curriculum are hypothesising, in part, that moving from school district to school district has some effect upon the academic achievement of the child and this does not appear to be true from the present study.

Educators are much concerned and all kinds of new plans are being developed to meet the challenge of the mobility of pupils. We know it is a universal problem in the United States — one that needs and seeks a solution. As pupil movement has led many educators to insist that a national curriculum is needed, some have used this as an argument for federal aid. Also, many have used this as an argument for outdating the local school district and local control by substituting centralization at some level.

Impact of mobility on children in different families would obviously vary. Assume a family of "culturally deprived" pupils (or culturally different pupils) have moved to Chicago from a rural area to an urban area. They may be affected less by mobility than some other groups such as the immigrant. What is needed then is adjustment of school programs in schools of various types to meet the needs of all of these children. More could be done with the slow learning student who is not motivated but handicapped by mobility. More can be done to establish this closer, personal relationship with the school which is so essential to learning — especially, we might assume, for those culturally deprived through mobility.

The school population of Mobiltown was made up of several minority groups with a variety of cultural backgrounds. Mobiltown's schools, and others like them, must adapt to meet the needs of each group. "Mobiltown" designates an anonymous community in Chicago whose public schools have a turn over rate exceeding one hundred per cent each school year. Problems from the research indicated that this was connected with schools having high turn over rates. More building programs to meet over-crowded conditions have been recognized as essential to improvement by educators. The evidence would seem to warrant the conclusion that the highly mobile children have an IQ potential not unlike the established population, and that eventually, under favorable circumstances they can achieve at a normal level.

The instructional program in the Chicago School System could have implications for others who must deal from day to day with the mobility question. Lower class sizes in making provision for individual differences is always difficult in a big city system but decrease in class size must be considered. Special problems in teaching the foreign born and some of the culturally deprived should also be taken into consideration. To reach effectively the extremes in the social, economic, and cultural groups was another Chicago problem. Maintaining a continuous program of instruction because of mobility and the instability of both student and adult population is difficult. Lack of understanding by teachers in crowded schools with high pupil turn over ratios magnified the problems and highlights the need for more research and enlightenment of the teaching profession about mobility-related difficulties in school life.

Social differences in the mobility picture are not unique to Chicago or any community. The results of this study could be used to show that children as a group who are highly mobile are more likely to be of lower class origin. There is no device to show that children of high mobility are necessarily culturally adjusted to teaching material and teaching techniques regardless of social-economic class. In any event, adjustment in the curriculum will be needed on an experimental, learn-by-doing basis until we have adequate knowledge of cultural influences (linked to mobility or not) which affect learning.

A study of mobility and education would not be complete without mentioning the physical education and health aspect. Here the difficulties and the solutions are more obvious. The school with a greater attendance of mobile students will have more health problems and students will need additional medical attention above and beyond what is provided in "normal" school situations.

On the economic side, schools in highly mobile and culturally deprived neighborhoods should receive an increase in book and supply accounts above and beyond what is considered an average — to more adequately provide for individual differences. The material purchased should reflect the cultural differences to be found in the school. A professional library, up to date, could be used to further educate teachers to the kinds of students with whom they might deal from day to day. In-service education is sorely needed in schools with high pupil turn over. A more complete understanding of the social background of students along with the setting of realistic goals for educational outcomes would help to alleviate many of the professional frustrations associated with schools of this kind.

With any research study, a pertinent question relates to the possible duration of the problem under examination. No researcher can anticipate the future, but he is probably as well qualified in his area of study as anyone to hazzard some guesses. On the mobility of America's population, a reasonable assumption can be made that the present mobility pattern will continue for some time.

Analysis of the nature of mobility in the United States shows how cultural intermixing complicates measuring of influences which have directional roots both vertically and horizontally on a national, regional, and local plane. As has been stated, in terms of residence, one out of five persons has been on the move every year in recent times while in all situations there are forces at work for upward grading of social and economic status.

Historically our nation has seen the westward migration, the movement from rural communities to urban centers, and the shift from the rural south to the industrial north. Contemporary mobility patterns show a sharply-accelerated population flowout from the cities to surrounding suburban areas which in the past decade have grown about six times faster than parent cities. At the same time, small towns as well as the agricultural areas are losing people to expanding cities.

A glance at the way educators have played with ideas to explain their problems as a consequence of this mobility dramatizes the need for more insight.

Several terms are used by educators to explain the problems associated with teaching the migrant, or the group of students who move a great deal. Limited background is one. Another is cultural deprivation. Others claim inequality of educational opportunity. More recently students have been called "The Disadvantaged."

Educators commonly claim a number of factors conceivably could be reinforced to bring about higher educational attainment, particularly for the lower social economic status youths. They say parents and youths could be influenced to adopt more favorable attitudes concerning the value of formal education if youths could be relieved of some unpaid work at home, if the community could provide more part-time work for the youths during the school term, if school personnel would assist lower social economic status youths in finding acceptable roles in extra curricular activities, and if teachers would deliberately encourage youths to remain in school. Thus a large percentage of youths could be influenced to adjust socially to the school environment and thereby gain the benefits of a higher form of educational attainment.

A prime objective of basic educational research is to unmask areas where real problems affecting learning lie hidden. The impact of mobility on the learner in our exceedingly mobile population has for sometime been an inadequately researched phase of education. Mobility has been repeatedly blamed in general terms for lack of pupil success.

Mobility does not appear to be a mutually exclusive problem. It may be only one facet or symptom of a greater problem or even a set of problems. Related is the challenge of what to do with under-achievers, poor attitudes of students toward school, imposing of middle class standards by the profession, indifferent parents, effects of broken homes, the emotionally disturbed, etc.

A wider approach may be needed that would involve several disciplines and several sets of variables. The cultural complexity of the milieux in which mobile pupils operate adds to the scope and depth of the mobility question.

The basic challenge upheld by this research points to the need for new research tools and extensive use of these new research and testing instruments to uncover knowlege about cultural involvements of mobile students so that scientifically based recommendations for meeting their educational needs can be met.

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A METHOD OF EDUCATIONAL DIAGNOSIS FOR THE BRAIN INJURED CHILD

Patricia Myers

The ultimate goal in a program of educational diagnosis is a method of differential diagnosis which can be presented in a fashion so as to depict the abilities and disabilities of a particular child. In turn, this method of diagnosis should lead to a program of remediation which will utilize the child's assets to develop his areas of deficiency.

Insofar as pure academics are concerned, we are interested in knowing at what levels, both instructional and independent, a child is reading; and what word attack skills, such as consonant sounds, vowel sounds, blending, syllabication, he may be lacking. In writing and spelling we must know whether the child writes; whether he uses manuscript and cursive; can he copy a simple sentence from a model given to him from the board and/or from dictation; can he write a sentence or more of his own; and at what grade level can he do regular work in a speller?

In arithmetic, we may take inventory of a child's needs by determining whether he can count by rote, count objects, recognize number groups, count by 2's and 5's, write numbers from dictation, and handle basic arithmetic facts and processes.

Formal achievement tests are administered individually to the child in order to assess his academic performance in the areas of arithmetic, spelling, and writing. To determine a child's reading level, it has been found that the Diagnostic Reading Scales (Spache, 1963) and the Durrell Analysis of Reading Difficulty (Durrell, 1955) are two of the most efficient instruments that have been used.

The Diagnostic Reading Scales are a series of interrelated tests, usually administered in sequence. The scores of the initial tests help to determine the level of achievement at which subsequent tests should be administered and, on occasion, whether subsequent tests are necessary. There are five units of the DRS and each will be reported briefly in the sequence of administration.

1. The Word Recognition Lists — These lists give an estimate of the instructional level of reading, reveal the child's methods of word attack and analysis and evaluate his sight word vocabulary.

2. The Instructional Level — The child's oral reading performance, in terms of both errors and comprehension, will enable the teacher to determine the suitable level for instructional reading materials. The level at which any instruction in oral reading can be carried out is ultimately that point at which the pupil has no undue difficulty simply in reading the words of the instructional material.

3. The Independent Level — Identifies the grade level of recreational and

supplementary reading materials at which the child can read silently, with adequate comprehension.

4. The Potential Level — Represents the level to which a child's reading may be raised through remedial or classroom training.

5. Phonics Tests — The purpose of the Phonics Tests is to provide a detailed analysis of the pupil's phonic knowledge and word attack methods by measuring the two-way skills that are essential to forming reciprocal associations between symbols and sounds.

Many authorities report that proper remedial training should enable every pupil to read at a level equal to his mental age. Approaching the situation logically, this general statement is relatively true; pupils of equal mental age should be able to read as well as others of the same mental age, provided all are taught properly. In actuality, this correspondence of potential and performance is not parallel. Many factors may disturb the balance between mental age and reading level and prevent the two from being equivalent (Spache, 1963:20).

The effects of delayed speech, defects of articulation, bilingualism, emotional problems and sensory defects, are some of the obstacles to achieving reading skills consistent with potential. In addition to these difficulties, we are concerned with the perceptual associative, integrative disturbances found in the child with brain damage which also act as effective barriers to adequate reading performance.

Once the achievement level of a particular child has been determined, it becomes necessary to evaluate in some manner those central processes which must be functioning appropriately before the child can read, write, or spell at his potential level. Three tests which have proved valuable in assessing a child's abilities and disabilities and in giving us a basis for recommending remediation will be discussed.

The first instrument is the Marianne Frostig Developmental Test of Visual Perception (1961). The test is designed to measure certain operationally defined perceptual functions, and to pinpoint the age at which these functions normally develop. On this basis, it is possible to predict school success insofar as it depends on visual perceptual abilities. Those children who deviate from the norm can be identified and the range and severity of the perceptual disabilities measured, regardless of the etiology, be it brain injury, developmental lag, or emotional disturbance. Moreover, training procedures designed to correct the specific disabilities can then be instituted.

The test items measure a child's performance of a variety of motor tasks against the norms for his age. These tests were chosen by the author because of their seeming relevance to school performance (Frostig, 1961). The fairly well directed eye movements necessary for accurate responses in Subtest I are a precondition for reading. Eye-hand coordination is a prerequisite for writing. A sufficient ability to shift in figure-ground perception is necessary for the analysis and synthesis of words, phrases, sentences, and paragraphs involved in reading. Form constancy must reach a certain point in development before a child can recognize a word in varying contexts. On the accurate perception of position in space and spatial relationships depend the ability to differentiate similar letters like "b" and "d", and to recognize the sequence of letters in a word, and words in a sentence.

Although experience has shown that brain damage often seriously affects perceptual ability, Dr. Frostig (1961) states that the test does not, at present, presume to measure organic dysfunctions.

The five subtests are:

1. Eye-Motor Coordination — A test of eye-hand coordination which involves the drawing of continuous straight, curved, or angled lines between boundaries of various width, or from point to point without guide lines.

2. Figure-Ground — A test involving shifts in perception of figures against increasingly complex grounds. Intersecting and "hidden" geometric forms are used.

3. Constancy of Shape — A test which measures the recognition of certain geometric figures presented in a variety of sizes, shadings, textures, and position in space, and their discrimination from similar geometric figures. Circles, squares, ellipses and parallelograms are used.

4. Position in Space — A test involving the discrimination of reversals and rotations of figures presented in series. Schematic drawings representing common objects are used.

5. Spatial Relationships — A test involving the analysis of simple forms and patterns. These consist of lines of various lengths and angles which the child is required to copy, using dots as guide points.

Although difficulties in academic learning may be caused by disabilities in visual perception, it is possible that disabilities in auditory perception may be partly or entirely responsible. Therefore, in addition to the auditory portions of the Illinois Test of Psycholinguistic Abilities, the Auditory Discrimination Test, designed by Wepman (1958), is administered.

The task presented to the child by this test is a simple one. It measures only the ability to hear accurately. No visual ability is necessary; only the ability to indicate affirmatively or negatively by saying a single word or even nodding and shaking the head is needed. The child is asked to listen to the examiner read pairs of words and to indicate whether the words read were the same (a single word repeated) or different (two different words).

Every possible match of phonemes used in English was made within phonetic categories; for example, phonemes within the articulatory category of simple stops (p, t, k) were matched only with other phonemes within that category. Each word-pair is equated for length. Thus, the possibilities of discrimination on the basis of articulatory position or span rather than audition have been avoided.

Administration of the test to 5 and 6 year olds permits the selection of those who are likely to have difficulty learning to use the phonics necessary for reading. It has been found useful also for older children in the differential diagnosis of reading and speech difficulties. When poor discrimination has been found it has proven useful to develop special techniques for increasing auditory perception or for increasing the visual modality of learning while the auditory modality is developing.

The last test in the battery is the Illinois Test of Psycholinguistic Abilities (Kirk and McCarthy, 1961). The ITPA consists of nine subtests; six at the Representational Level and three at the Automatic-Sequential Level. The tests at the Representational Level all have one thing in common — they deal with meaningful symbols. The Decoding tests assess the child's ability to comprehend spoken words and pictures. The Association tests deal with the ability to relate visual or auditory symbols in a meaningful way, either through the auditory-vocal or visual-motor channel. The Encoding tests assess the ability to put ideas into words or gestures. The tests at the Automatic-Sequential Level deal with the non-meaningful uses of symbols, principally their long term retention and the short term memory of symbol sequences.

These instruments — a spelling and arithmetic achievement test, the Diagnostic Reading Scales, the Marianne Frostig Developmental Test of Visual Perception, the Auditory Discrimination Test, and the Illinois Test of Psycholinguistic Abilities — make up the battery which is administered to the child who is manifesting learning disabilities, regardless of etiology. From the results of these tests, a program of specific remediation may be outlined for the individual child. In the final analysis, as was mentioned at the beginning of this paper, a method of diagnosis leading to a program of remediation is the ultimate goal. We should not be interested in applying labels with all of their inherent semantic difficulties to children, but instead we should attempt to determine a particular child's abilities and disabilities so that we may utilize his assets to develop his areas of deficiency.

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PROACTIVE AND RETROACTIVE INHIBITION AMONG MENTALLY RETARDED SUBJECTS

Richard C. Scheerenberger

Retention, defined by McGoech and Iron (1952, p. 355) as "a general term referring to the persistence of those modifications of behavior which have been learned," is an inchoate but critical aspect of the total learning process. Forgetting — the failure of retentive persistence — reduces learning efficacy by precluding or debilitating the transfer of past experiences to new or related situations.

Although the interference theory, which is studied in terms of proactive and retroactive inhibition, provides a significant basis for the analysis of the processes related to forgetting, it has not been extensively subjected to psychological research with the retarded. The few studies which have examined the retentive effects of interference among the retarded were primarily concerned with the comparative performances of normal and retarded S and only considered retroative inhibition.

Johnson (1958) compared the retentive performance of normal and mentally retarded Ss under conditions of retroactive inhibition. Although retroactive inhibition was observed for both groups, the amount of inhibition was significant only for normal Ss. In contrast, subsequent comparative studies by Cassell (1957) and Pryer (1960) found the retentive performances of both mentally retarded and normal Ss to be adversely influenced by retroactive inhibition; however, there were no significant differences between the respective groups.

Research with the interference theory among normal Ss has revealed the existence of five determinative variables which consistently influence both proactive and retroactive inhibition: stimulus-response similarity, meaningfulness of material, degree of learning, amount of learned material, and the duration of retention interval. The duration of retention interval is of consequence to understanding the relative effects of proactive and retroactive inhibition and was chosen for this investigation with retarded subjects. A brief review of the pertinent research concerning this variable will assist in clarifying the theoretical implications of varied retention intervals upon the magnitude of incurred inhibition.

The majority of experiments conducted between 1900 and 1950 were primarily concerned with retroactive inhibition. The results of these studies clearly indicated that retroactive inhibition produces significant retentive decrements which tend to remain relatively stable over varying time intervals. The few investigations which considered proactive inhibition were only concerned with short-term retention. Under these circumstances proactive inhibition was found to possess a negligible influence on retention. Subsequently, it was concluded and assumed that retroactive inhibition was primarily responsible for forgetting. Underwood (1948) interpreted the unlearning of interference materials associated with proactive inhibition to be a function of conditioning; in other words, interfering responses arising during the learning of the recall task were extinguished as a consequence of non-reinforcement. When retention was measured shortly following the learning of the recall task, the absence of response competition would account for the nearly perfect recall performances noted in the earlier studies. However, given an extended retention interval, Underwood predicted that the spontaneous recovery of the unlearned responses would result in substantial response competition and significant retentive losses. This prediction was confirmed in studies by Underwood (1948), Briggs (1954), and Slamecka (1961); proactive inhibition was found to increase with increased retention intervals as a function of the spontaneous recovery of competing learned responses. If this phenomenon was observed with retarded Ss, it would suggest that the acquisition of faulty habits and skills may adversely influence the retention of subsequent related learning.

Purpose

The purpose of this study was to investigate the susceptibility of educable mentally retarded Ss to the influence of proactive and retroactive inhibition and to examine the relative effects of such inhibition as measured over varying retention intervals. Specifically, three null hypotheses were developed:

Null hypotheses I: There would be no difference between the control, retroactive, and proactive groups with respect to recall performances.

Null hypotheses II: There would be no difference between the recall performances for the control, proactive, and retroactive groups when measured at varied retention intervals.

Null hypotheses III: The recall performances for the control, proactive, and retroactive groups would not be differentially associated with the varied retention intervals.

Method

The basic procedures employed in this experiment were standard to the study of proactive and retroactive inhibition.

Subjects A total of 120 mentally retarded Ss enrolled in the special classes of the Milwaukee public school system participated in this experiment. The chronological age range, in years and months, was 7-5 to 17-1 with a mean of 13-2 and a standard deviation of 8-7; the intelligence quotient range was 50 to 80 with a mean of 68 and a standard deviation of 7; the mental age range was 5-1 to 12-6 with a mean of 9-1 and a standard deviation of 1-5.

Experimental Design and Groups. The experimental conditions were developed in accordance with the paradigm outlined by Underwood (1949). This model required three groups of *Ss* for each retention interval: a control group which simply learned the task to be recalled; a proactive group which learned the interference task *prior* to the recall task; and a retroactive group which learned the interference task *after* the recall task. Ten minute and 48-hour recall periods were established for the purpose of measuring the effects of inhibition over varying retention intervals. The 120 *Ss* were randomly distributed over the six experimental conditions: control, 10-minute recall; control, 48-hour recall; proactive inhibition, 10-minute recall; proactive inhibition, 48-hour recall, retroactive inhibition, 10-minute recall; and retroactive inhibition, 48-hour recall.

Experimental Tasks. Two nine-item paired-associate tasks were developed for this experiment. For both tasks, configurational stimulus members were paired with number-letter response combinations. The items were printed with black ink on 3" x 5" cards. Task A was used for measuring recall performance, and Task B was utilized as interference material under proactive and retroactive conditions.

A fill-in task was introduced in those conditions where recall was measured following the ten-minute retention interval. This task, designed to minimize the rehearsal of recall items, required *Ss* to independently select pictures they liked best from *Look* and *Life* magazines.

Experimental Procedures. All tasks were individually administered, and the directions were read aloud by the examiner. In order to control the degree of potential overlearning, which would substantially influence the ultimate results, a method of adjusted learning was utilized for the presentation of the learning tasks. Each paired-associate list was presented to the *S* for a total of ten trials. The between-item exposure rate was set at five seconds to provide ample opportunity for the retarded *Ss* to respond. For the first two trials, *Ss* were simply required to verbally identify and pair the respective stimulus-response members. This allowed for initial learning and warm-up. *Ss* were then administered six trials in which they were to anticipate the response upon the appearance of the stimulus member. If during these six trials a paired-associate item was correctly identified twice, it was removed from the list. The number of items correctly paired on the tenth trial was used as a measure of learning. With this procedure, no single item could be reinforced more than four times. The correct stimulus-response pair was always presented following the *Ss* response, or a lapse of five seconds, to ensure immediate reinforcement or correction. In addition, the paired-associate lists were reshuffled after each trial to avoid a serial position effect.

Retention was measured on the basis of one-trial recall performances which, according to studies by Melton and Von Lackum (1941), McGoech and Underwood (1943) and Underwood (1945), would be most sensitive to retentive decrements. Recall for all *Ss* was measured on Task A following ten-minute or 48-hour retention intervals.

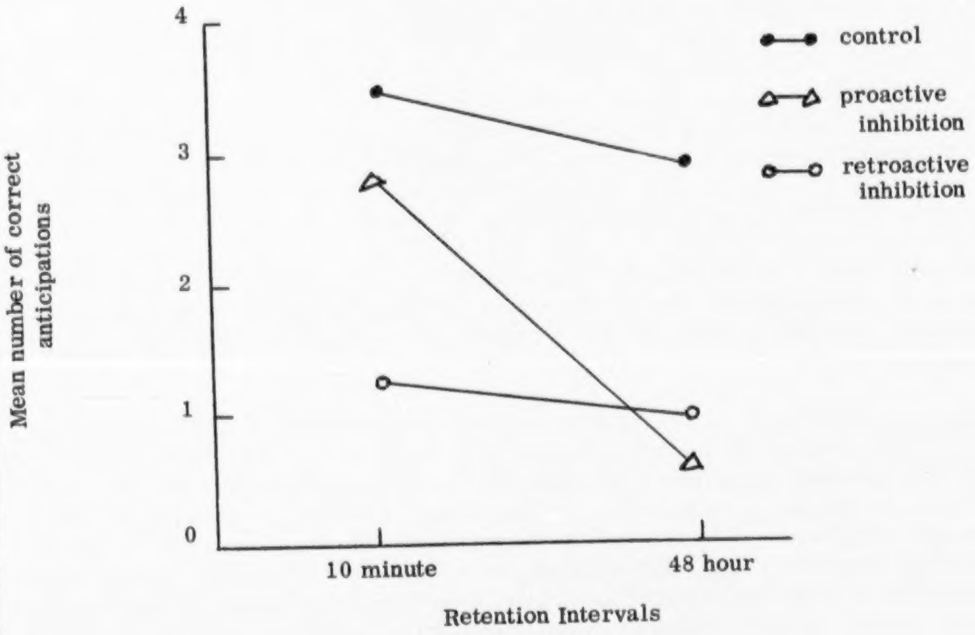
Since the experimental conditions required a 3 X 2 (groups X intervals) factorial design, the analysis of variance for replicated measures was appropriate for the initial treatment of m[illegible]. Sheffe's method of multiple comparisons was utilized for the subsequent testing among means (Edwards, 1962). The .05 level of confidence was used consistently in the statistical analysis.

Results

The results of the learning performances indicated that any differences between the groups observed at the time of recall could not be attributed to a variance in amount of learned material. The overall mean number of learned first-task responses for the six groups was 3.71 with a standard deviation of 1.69; the overall mean learning score for the recall task was 3.54 with a standard deviation of 1.81; the overall mean learning score for the interference task was 3.75 with a standard deviation of 1.79. There were no statistically significant differences between the groups with respect to the various learning performances.

The results of the one-trial recall performances have been plotted in Figure 1. The underlying data were used in testing the null hypotheses.

Figure 1



Recall Performances of Six Experimental Groups
Based on the Mean Number of Correct
First-Trial Anticipations

Null hypotheses I: There would be no difference between control, proactive, and retroactive inhibition with respect to recall performances. The analysis of variance, presented in Table 1, resulted in a between group F of 16.62 which, for 2 and 114 degrees of freedom, was significant at the .05 level. Therefore, the null hypotheses was rejected.

Table 1 — Summary of Analysis of Variance of First-trial Recall Performances

Source	df	SS	MS	F
Between groups	2	83.75	41.88	16.62*
Between retention intervals	1	30.00	30.00	11.94*
Groups X intervals	2	22.05	11.03	4.38*
Within	114	287.00	2.52	
Total	119	422.80		

* significant at the .05 level

As shown in Table 2, the mean number of correct anticipations for the control, proactive, and retroactive groups at the ten-minute retention intervals were 3.50, 2.95, and 1.25.

Table 2

Mean Number of Correct Anticipations
on First Recall Trial

Groups	Retention Interval: 10 minute	48 hour
Control	3.50	2.95
Proactive	2.95	0.75
Retroactive	1.25	1.10

According to the data presented in Table 3, comparison between the mean for the control and retroactive groups revealed the difference significant at the .05 level (46.22 28.95). There was, however, no difference between the recall performances of control of proactive groups (3.03 28.95). Thus, as shown in Figure 1, while the deleterious effects of retroactive inhibition were evident following short-term recall intervals, the influence of proactive inhibition was negligible. The mean number of correct anticipations following an interval of 48 hours for the control, proactive and retroactive groups were 2.95, 0.75, and 1.10. At this interval, the performances of both proactive (48.28 28.95) and retroactive (34.22 28.95) group were significantly different from that of the control group. As shown in Figure 1, there was a tendency for the proactive performances to be lower than those for retroactive inhibition; however, the difference between the respective groups was not significant (1.22 28.95). Thus, the effects of retroactive inhibition were significant at both ten-minute and 48-hour retention intervals. Proactive inhibition was significant only at the 48-hour interval.

Null hypotheses II: There would be no difference between the recall performances for the control, proactive, and retroactive inhibition groups when measured at varied retention intervals. The analysis of variance, summarized in Table 1 resulted in between retention interval F of 11.94 which, for 1 and 114 degrees of freedom, was significant at the .05 level. Therefore the null hypothesis was rejected.

As shown in Table 3, a comparison between the recall means of the control groups for the ten-minute and 48-hour retention interval revealed no significant difference (3.03 28.95). A comparison of the retroactive group means for the two retention intervals also revealed no significant difference (0.62 28.95). In contrast, the recall means of the proactive group for the varying retentive intervals were significantly different at the .05 level (48.40 28.95). As shown in Figure 1, the performances of the control and retroactive inhibition groups were relatively constant for the two intervals. Under conditions of proactive inhibition, however, the 48-hour recall performance was slightly less than that recorded for the ten-minute retention interval.

Null hypotheses III: The recall performances for the control, proactive, and retroactive groups would not be differentially associated with the varied retention intervals. According to the analysis of variance summarized in Table 1, there was a significant interaction between recall groups and retention intervals; the F of 11.03 with 2 and 114 degrees of freedom was significant at the .05 level. Therefore, the null

Table 3

Multiple Comparisons Among Means
(Sheffe's Method)

Comparisons	C-10 $\sum X=70$	C-48 $\sum X=59$	PI-10 $\sum X=59$	PI-48 $\sum X=15$	RI-10 $\sum X=27$	RI-48 $\sum X=22$	$\sum a_i^2$	D	D^2	A
C-10/PI-10[a]	1	-	-1	-	-	-	2	11	121	3.03
C-10/RI-10	1	-	-	-	-1	-	2	43	1849	46.22*
C-10/C-48	1	-1	-	-	-	-	2	11	121	3.03
PI-10/PI-48	-	-	1	-1	-	-	2	44	1936	48.40*
RI-10/PI-48	-	-	-	-	1	-1	2	5	25	.62
C-48/RI-48	-	1	-	-1	-	-	2	44	1936	48.40*
C-48/RI-48	-	1	-	-	-	-1	2	37	1396	34.22*
PI-48/RI-48	-	-	-	1	-	-1	2	-7	49	1.22

Smallest significant value of A at the .05 level = 28.95[b] hypotheses was rejected.

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* significant at the .05 level

[a] C = control; PI = proactive inhibition; RI = retroactive inhibition

[b] [$F' = (6-1)(2.29) = 11.45$; $(F')(s^2) = (11.45)(2.52) = 28.95$]

The examination of the plotted means indicated that the conditions of proactive inhibition were probably responsible for the resultant interaction effect. As shown in Figure 1, the line for proactive conditions was diagonal to the nearly parallel lines for control and retroactive groups. In view of this observation, a second analysis of variance was computed for the purpose of determining the interaction when only data for control and retroactive groups were considered. According to this analysis, summarized in Table 4, the interaction was not significant. Therefore, the original interaction effect was a function of the recall performances associated with proactive inhibition.

Table 4

Recalculation of the Analysis of Variance for the
Purpose of Determining the Significance of
Interaction for Control and
Retroactive Group Data

Source	df	SS	MS	F
(Between groups)	(1)	(80.00)		
(Between intervals)	(1)	(3.20)		
Interaction	1	.45	.45	< 1.00
Pooled within	76	202.30	2.67	
Total	79	285.95		

To briefly summarize these findings, the three null hypothese were rejected. There was a significant difference between the control, proactive, and retroactive groups with respect to recall performances. There was a significant difference between the recall performances of the control, proactive, and retroactive inhibition groups when measured at varied retention intervals. The recall performances for the control, proactive, and retroactive groups were differentially associated with the varied retention intervals; however, this result was solely a function of proactive inhibition.

Discussion

The retentive behavior of the retarded Ss under conditions of both proactive and retroactive conditions conformed to the expectancies of the interference theory developed from experimentation with normal and gifted young adults. As previously observed by Cassell (1957) and Pryer (1960), significant retentive decrements were associated with retroactive inhibition among retarded Ss. The fact that only retroactive inhibition produced significant short-term retentive losses would support the Melton and Irwin (1940) two-factor theory to the extent that for short-term recall, retroactive inhibition, a function of unlearning and response-competition, should be greater than proactive inhibition since the latter is simply a function of response-competition. The relative stability of retroactive inhibition as measured over varying retention intervals also supports the previous findings of experimental psychologists.

The increase in proactive inhibition as related to the extended retention interval would be anticipated on the basis of Underwood's conditioning hypothesis: under conditions of proactive inhibition, a prolonged retention interval allows for the spontaneous recovery of extinguished interference responses which increases the amount of response competition and subsequently the amount of retentive loss.

It was also observed that the amount of retentive loss for the control group did not significantly vary for the two retention intervals. This would confirm Underwood's (1957) prediction and Slamecka's (1961) experimental evidence that the type of material utilized in inhibition studies is not readily subject to interference arising from extra-experimental learning.

The sum effect of the results of the experiment with retarded Ss would indicate that the interference theory offers a substantial explanation of forgetting regardless of an individual's intellectual ability or level of functioning.

Summary

The purpose of the experiment was to investigate the susceptibility of educable mentally retarded Ss to the influence of proactive and retroactive inhibition and to examine the relative effects of such inhibition as measured over varying retention intervals.

One hundred and twenty mentally retarded Ss were randomly assigned to one of six experimental conditions: control, 10-minute recall; control, 48-hour recall; proactive inhibition, 10-minute recall; proactive inhibition, 48-hour recall; retroactive inhibition, 10-minute recall; and retroactive inhibition, 48-hour recall. Two nine-item paired-associate tasks consisting of configurational stimuli with number-letter responses were introduced for the purpose of measuring learning and retention. Under control conditions, Ss learned only the task to be recalled. Under conditions of inhibition, Ss learned the interference task prior to (proactive inhibition) or following (retroactive inhibition) the task to be recalled. The tasks were individually presented by a method of adjusted learning and were administered for a total of ten trials with the number of correct anticipations on the tenth trial being used as an index of learning. Retention was measured on the basis of one-trial recall performances following a ten-minute or 48-hour retention interval.

The results of the learning performances indicated that any difference between the groups at the time of recall would neither be a function of significant discrepancies in initial learning nor inequalities between amounts of learned interference or recall material. There were significant differences between the control, proactive, and retroactive groups with respect to recall performances and between such performances when measured at varied retention intervals. Although the recall performances for the retroactive groups were consistently lower than those for the control groups, the effects of proactive inhibition were of significance only when measured at 48 hours. Furthermore, only proactive inhibition was found to increase with the increased retention interval.

Thus, the retentive behavior of the retarded Ss was susceptible to both proactive and retroactive inhibition, and the decremental effects of proactive inhibition were differentially associated with the varied retention intervals. The performance of the retarded Ss conformed to the expectancies of the interference theory as developed with normal and gifted subjects.

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PROGRAM PLANNING FOR RETARDED CHILDREN WITH PSYCHOLINGUISTIC ABILITIES

Douglas E. Wiseman

The purpose of this paper is to report on a study being conducted at the Lt. Joseph P. Kennedy School for Exceptional Children. The study is attempting to (a) devise methods of remediation that are effective for children with psycholinguistic disabilities and develop a sequential program of remediation, and (b) to see how effective the program is by comparing the children receiving the treatment with children not receiving special help. I will define psycholinguistics as how an individual uses his language. That is, can he understand what is said or seen? Can he express his ideas vocally or by gesture? Can he relate new and old ideas? Has he developed the structure of the language, and so on: The primary goal of this paper will be to discuss some of the problems involved with developing a program of remediation, such as (a) how to identify children with a language problem, (b) how to prescribe appropriate remedial methods and (c) models that can be used to simplify the development of appropriate remedial methods.

Recently, the trend in education of the mentally retarded has been to emphasize general language development programs. The child is placed in a situation where he will receive a great deal of language stimulation — not directed at specific language abilities or disabilities, but rather at all phases of language development. However, few of these efforts have dealt with the effectiveness of the program, merely the content and a few opinions. The research attempted has dealt mainly with speech and oral communication and has been plagued for numerous reasons with contradictory results. It is not an easy task.

It is generally accepted that the speech and language development of mentally retarded children is delayed. But a more basic question arises in Kirk's statement "One of the major theoretical questions is whether lack of language development among mentally retarded children is an inevitable consequence of mental retardation, or whether intensive training can improve the rate of language development." In essence, do all retarded children have to have poor language skills or can they be improved by training? An improvement in language ability would lead one to expect a corresponding growth in other mental abilities, such as reasoning or memory, which are so essential for success in academic and social pursuits. Language is the foundation for higher mental processes.

Lyle (1960) and Smith (1962), working with educable mentally handicapped children, developed programs of general language enrichment with positive results. Kolstoe (1958) and Blue (1962) attempted general language programs with trainable and below retarded children with less spectacular, but positive results. Johnson, Capobianco and Miller (1960) conversely found their trainable control group progressed more than the treatment group in a general program. Several studies emphasizing remediation based on specific disabilities had positive results. (Kirk, Kass and Bateman, 1962, and Herman, 1962, and Hirsch, 1963) Many of the previous studies in this area were exploratory attempts or pilot studies, however, so generalizations must be made with caution. Thus, the need is apparent for a study under controlled research conditions that investigates the effects of a developmental program of language enrichment aimed at correcting specific, pinpointed language deficits.

There are certain questions a study of this type must explore. For example,

1. Is it possible to improve specific areas of language?

2. Can the Illinois Test of Psycholinguistic Abilities (ITPA) accurately identify areas of disability?

3. If there is positive growth in the areas of disability, will there also be a general gain in all areas of language?

4. Will tutoring based on language disabilities have any effect on other areas of perceptual or cognitive abilities, such as performance on visual perception or intelligence tests?

Twenty educable mentally handicapped children were paired on similarity of psycholinguistic disabilities and then divided randomly into experimental and comparison groups. These children were between 44 and 73 IQ with a mean IQ of 61. They were between six and a half and eleven and a half years of age. Children with physical or emotional impairments that could restrict the scope of the program were excluded. The children remained in their regular school program, but the experimental children were withdrawn from their classes for half-hour sessions of individual tutoring in their areas of psycholinguistic disability. Each child will be seen approximately sixty times. The effectiveness of the program will be measured by re-examining the experimental and comparison children on the battery of tests administered initially.

The major part of the study was to develop lessons designed to correct linguistic disabilities and combinations of disabilities. The program was to be outlined in detail and demonstrate the various changes in procedure with an accompanying rationale of why various activities were used. Remediation was carefully outlined before each child was tutored, and the results were carefully recorded.

The object of the remediation is to attack the faulty language process, not to teach the test. The ITPA is designed to identify "pure" disabilities, that is, not mixing the channels of input and output. "Pure" remediation would be impractical, if not impossible, and would impose a rigidity that would destroy the practical nature of the program. The same psychological examiners are to retest the group, not knowing which were treatment children. The matched pairs design will allow group and individual comparison.

I would first like to define two terms: differential diagnosis and differential remediation.

Differential diagnosis, in this discussion, refers to the process of identifying or pinpointing the specific areas of disability in the total language process. The language process is broken down into nine separate areas by the ITPA. Any of these areas, either alone or in combination, could be defective and hinder the learning process. The child's performance on the ITPA is made more definite by using a profile to clearly indicate the peaks of language strength and the valleys of language weakness.

When ill, we want and expect a scientific and individualized medical treatment. This scientific and individualized treatment is differential diagnosis and we feel we deserve it. This same service should be extended to our children in an educational setting. Mental processes seems as subject to anomoly as the medical processes.

A generalized treatment plan is similar to the present educational system. The school psychologist administers a Stanford-Binet to determine the extent of retardation and may suggest possible brain damage. There is no attempt to determine the specific disability that may be responsible for disrupting the learning process. How can the rather general label of mental retardation or brain damage be interpreted in educational methodology? Only globally at best. The teacher must use improvised and intuitive methods of identifying the child's various abilities — but only in conventional classroom topics, for example, reading readiness, arithmetic and so on. This generally is the extent of his training. The workbooks and class material are geared for normal children and survey many areas of the mental process, but none in depth, none that will remediate.

Differential diagnosis, medical or psychological, often is capable of identifying areas of the behavioral process that are remediable. A non-remedial diagnosis becomes sterile and limited classification. The term educable implies a dynamic and optimistic program of education. But recent research has demonstrated that the academic achievement of the special class retarded is not significantly different from the retarded who remain in the regular classroom. Some explain this lack of difference by suggesting that the EMH teacher is operating much like a social worker instead of a teacher of education. Others blame the training a teacher receives. Whatever the reason, experimentation is currently under way to see if more efficient devises for learning are available.

Language is the foundation of our higher mental abilities. Reasoning, judgment, memory and generalizations are abilities essential in academic and social endeavors. Perhaps our educational task, then, should be to identify those children with language disabilities (this seems to include a large portion of the retarded population) and remediate accordingly.

This thought introduces the second term suggested earlier — differential remediation. Differential diagnosis leads to differential remediation. This suggests that the disability must be identified before it can be purposefully and effectively remediated.

Differential remediation is a program of educational remediation based on the concept that the learning process is unique in each person and that certain abilities necessary to the smooth development of the learning process may be defective or delayed. These poorly developed mental abilities, ranging from the sensation level up to the conceptual level, are in need of special treatment — treatment that could conceivably modify the disability and permit more efficient learning.

A brief case study will better demonstrate the concept of differential diagnosis leading to differential remediation. John is an eight year old boy with an IQ of 69 and a mental age of five years and ten months. His ITPA profile shows deficits in years and months:

Auditory Decoding (understanding what he hears)	3-8
Auditory-Vocal Automatic (closure)	4-2
Auditory-Vocal Sequential (memory span)	4-6

Of particular interest are the great discrepancies in his language abilities: from 3-8 to 8-5 years, with the general cluster around the seven year level. John seems to have difficulty (a) understanding ideas presented through the spoken language, (b) auditory closure and (c) auditory memory span. The auditory closure subtest uses grammar to measure the ability of the child to profit from incidental learning, or learning that is accomplished automatically and not through conscious teaching efforts. Other indications of closure are the (a) ability to sound-blend, (b) to complete the partial pictures, and (c) a primitive use of language. The child may be able to express ideas, but in very poor form.

The results of the ITPA must be supported by other evidence before they can be used to establish a remedial program. The Stanford-Binet is helpful in this task. The items first failed and those near the ceiling may agree with the disabilities suggested by the ITPA. In this case, John failed Three Commissions and Comprehension III at year IV-6 to support the auditory decoding discrepancy. The items requiring verbal replies demonstrated an ability to use ideas but very poor skills in expressing them verbally. An informal sound-blending test and Dr. Kass's visual closure test also supported the auditory closure problem. The auditory memory span problems gained support by the very poor abilities demonstrated in repeating 5 digits at year VII and an informal test which required repeating unrelated words in sequence.

The areas of language disability at this point are sufficiently clear to develop a program of remediation for John.

Differential Remediation - Case Study

Disability One:
  Understanding What is Heard
1. Stories — Retell, answer questions and remember facts.
2. Definitions — The tutor defines a word and the child redefines in his own words.
3. Following directions.
4. Identifying objects or situations when described.

Disability Two:
  Auditory Closure
1. Sound Blending
2. Discrimination
3. Completing sentences with words or phrases.
4. Makes up a sentence with a given word included.
5. Evocative Responses — Tree-Strong.
6. Sensorimotor — Kephart.

Disability Three:

1. Multisensory considerations.
2. Slide.

John's disability in memory span will be used to demonstrate how the other senses can be combined to develop different forms of remediation that will correct the problem area. This slide shows how one exercise can be expanded into twenty-four different, but related exercises — all aiming to ameliorate the same problem.

Multisensory Breakdown

Memory Span Exercise-Letters in Sequence

Presentation Type	Response Type
Auditory (Child hears letters)	Vocal (Saying)
Visual (Child sees letters)	
Auditory and Visual (Sees and hears letters)	or
Tactile (Feels, e. g. raised letters)	
Tactile and Auditory (Feels and hears letters)	Motor (Pointing and/or Arranging)
Tactile and Visual (Feels and sees letters)	
Tactile, Auditory and Visual (Feels, hears and sees letters)	or
	Vocal *and* Motor

The presentation type refers to how the child receives information. The response type refers to how the child will express his information. The vocal response means he will say the sequence, regardless of how he obtains the information. The motor response means he will point out the series of letters from a card that may contain from two to ten possibilities, or it may be in arranging cards with letters on them in the same order they were presented or writing the letters, and the vocal and motor response implies using both modes of expression simultaneously.

The problem is quite clearly an auditory-vocal problem, but using the other sensory types, individually or in combination, may make the remediation task an easier one. As the child progresses, more emphasis is placed on the defective channel, in this case auditory-vocal, and the senses used so beneficially in the early stages of remediation can be eliminated.

The concept behind the multisensory breakdown can be used effectively in nearly all areas of teaching. It gives the teacher an opportunity to identify the child who operates more efficiently with certain sensory combinations. How many adults have to write a word before spelling it aloud? This concept allows a greater variety of activities while working on the troubled area. This breakdown provides a model which can be a foundation for highly creative production of educational techniques, or even in devising new test categories. The Fernald and Gillingham methods of teaching reading use a multisensory framework.

Another consideration in the multisensory approach to teaching is the recall versus recognition types of responses. Many of the educational workbook activities use recognition responses — the child has his choice of several answers. Recognition responses are useful in that they aid in keeping a quiet classroom and allow the teacher to work with individuals and small groups. However, many children with psycholinguistic disorders have difficulty making recall responses, that is, in eliciting responses. The recognition task generally structures the intellectual process for the child, leaving him free to choose within pre-set conditions. The recall response is structured by the question asked — the response content is internal or self-eliciting in origin, therefore demanding a greater effort and ability. Developmentally, the recognition response comes first and is eventually followed by recall. The response types, vocal, motor, and vocal and motor can be used in either recognition or recall tasks. Educational programs, methods and tests might make productive use of this concept.

Often speech and communications are used interchangeably with language, but in reality, language encompasses both disciplines. The language process has many facets — reception or input; expression or output; relating ideas; memory at both the meaningful and non-meaningful level; sequential orientation; discrimination; closure, both meaningful and non-meaningful; the organism's ability to absorb and use incidental learning, and so on.

Programs designed to ameliorate psycholinguistic disabilities are few, due to poor communications and inadequate understanding of the language process. Perhaps the work being done to identify the various abilities in the language process will reduce the problem in communications. A purpose of this study is to devise a program that can be administered by a tutor or teacher not specifically trained in psycholinguistics.

Programing is nothing more than good teaching. It is a developmental breakdown of an idea or a skill into its smallest parts. The teacher begins where the child can successfully perform. Recent research with teaching machines has re-emphasized the need for the proper breakdown and sequence of concepts to better assure learning. Program builders operate under the assumption that if the child doesn't learn, the development of the program is at fault, not the child. This is a healthy reminder that we know more about the process of learning than we use. There is great need in both general and special education to interpret the vast storehouse of scientific knowledge into educational methods and materials. Industry would never tolerate such waste.

There are certain problems that must be considered when planning a program for psycholinguistics. The goals of such a program must be clearly defined before an effective program can be developed. Individual goals are decided by differential diagnosis which carefully outlines the direction to be taken in remediation. Other considerations may, for better or worse, modify the general goals of an "ideal" program for the retarded. These would include:

A. Administrative Structure
   1. Personnel
   2. Finances
   3. Physical facilities
   4. Equipment
   5. Parent relationships
B. Identification Procedure — formal and informal
   1. Age and grade (e.g. kindergarten) or,
   2. All children when identified as mentally retarded
C. Instructional Organization
   1. Individual tutoring
      . special teacher
      . within the class structure assisted by coordinator
      . coordination with other special services — reading, speech and so on.
   2. Group Teaching — special
      . homogeneously grouped as to specific disability
      . heterogeneously grouped — varied disabilities
      . size of group
      . age variability in groups
   3. Group teaching — general program for EMH class
      . regular teacher assisted by coordinator
      . specialist rotating to classrooms
      . platoon system to special classroom

4. Long-term program
    - tutoring or small groups at lower elementary
    - general program for upper grades including remedial reading

D. Evaluation Procedures

These are problems common to any new school program and are generally overcome with a joint effort.

The remedial procedures for improving psycholinguistic skills in retarded children are of special interest. Regular education is currently emphasizing the 'pursuit of excellence' in educational programs. The child is encouraged to develop work habits in scholastic activities that are nearly comparable to the disciplined excellence practiced in science and technical industries. These same habits should be instilled in the retarded child, but of course within his capabilities. The pursuit of excellence in school work, Duncan suggests, seems to have a generalized effect in the life habits of the retarded child. All aspects of his life, social, vocational, and academic seem to benefit. Of course the excess of any virtue becomes a vice, so good judgment is required of the educator.

The pursuit of excellence is particularly important when helping children with psycholinguistic or language disabilities. When a disability is identified, the teacher must continually remediate this disability until it is overcome. If a task is considered important enough to be included in a program, excellence in performing this skill must be assured before introducing new and related activities. Current educational materials e.g. workbooks, often have activities that are extremely important for the language growth of a child, but they don't remediate. They merely introduce a model of thinking and then go on, leaving the teacher to devise materials that are so sorely needed for the retarded. The time and effort required to overcome specific disabilities will vary depending on the severity of the disability and the personalities of the child and teacher. A conscious concern for excellence, on the part of the teacher, will produce numerous worthwhile side-effects. First, it will provide a more structured educational situation that removes many of the distractions, both internal and external, that operate to handicap the child. The attention span factor becomes less of a handicap in a structured situation. Intellectually and linguistically the child is better able to function at his maximum ability. Operating at a higher mental efficiency will allow more opportunities for success and to expand his range of experience. This in turn will serve as a foundation for continued intellectual growth.

Secondly, the mentally retarded child with psycholinguistic disability is less able to profit from incidental learning. Most of our intellectual foundation is built on the premise that we can learn from non-obvious encounters with a subtle environment. For example, the kindergarten curriculum has very little direct teaching. The normal child benefits because he is more aware of things and is capable of noting relationships between these things, using them to develop an experience bank. The concern with excellence stimulates an awareness of the incidental in the retarded child's environment and his inability to profit by it. Language structure (or grammar) is an example of incidental learning. Many retarded children must resort to a highly primitive use of words in order to express ideas. The teacher, therefore, must be more sensitive to the need for careful preparation of classroom activities. Watered down academics or making comb cases may not be the necessary experiences that build meaningful language and mental abilities. Preparation and planning, particularly when based on the goal of developing language and mental abilities in the child, take on new meaning and significance. The multisensory breakdown, discussed earlier, is a valuable tool when used as a framework for developing remediation methods and planning in general. With less effort the teacher can plan for activities that will assure success but tax the child's ability. Each activity should be within the child's ability range, but just barely. Each activity should have a little gray of the unknown. Success, with effort is a meaningful ally for teacher and pupil alike.

A cautious note, at this point, however. The length of time these children can meaningfully operate within the scope of their most defective mental ability may be limited. Fatigue limits what can be planned and accomplished, particularly in the early stages of treatment.

Finally, the pursuit of excellence in education leads directly to the experimental or scientific method of thinking. Pre-planning implies thought, hypotheses, experimentation and evaluation, in essence, an orderly approach to solving a problem. The teacher must search for the problem and develop informal hypotheses as to how it can be corrected. These hypotheses must be interpreted into educational practice. The teacher must then decide which of the many methods in education can be best used to correct this particular disability. Perhaps Kephart should be used for children with a sensorimotor problem. Fernald's Kinesthetic approach may better help those with visual memory span disabilities. Closure disabilities may profit by Hegge, Kirk and Kirk's Remedial Reading Drills. The teacher must pull together ideas, materials and known approaches in order to decide which should be used for specific disabilities. Evaluation must be an active part of every activity. If the child can't perform an activity — why? Could he use other sensory channels more effectively? Informal tests should continually check the child's achievement. A language program without evaluation has the inherent danger of being worthless. The concept of experimental education is dynamic and should be the foundation of every educational program.

The following are ten long-established principles that aid in the learning process. They can be used in devising different methods and techniques of remediation. They will serve as practical guidelines in developing, and later evaluating, a program of specialized remediation.

1. Readiness: Historically, the concept of readiness has been confusing and contributed to a static, do-nothing educational program — a program that waits while nature supposedly matures lagging mental abilities. How many parents have heard a well-meaning pediatrician suggest the child will grow out of his handicap? The readiness concept discussed in this paper is dynamic. Begin the remediation process at the level where the child can begin learning. The point where the child can begin learning is the readiness level. Diagnostic tests can usually identify the area of disability and provide a rough indication of the readiness level, but the teacher must explore and experiment in a remedial setting before the exact level can be pinpointed. For example, if a child has trouble understanding what he hears, determine how primitive his understanding skills are and begin with exercises that will permit him to achieve. It may be simply repeating short phrases or sentences. This would later be expanded to include following simple directions or listening to a story and then retelling it, remembering specific facts of answering single questions. In summary, (a) find the specific area of disability, (b) determine how retarded the child is in this specific area, and (c) find remedial procedures that are effective at this level. This, then, is a dynamic interpretation of readiness — not when to remediate, but where and how to remediate. Theoretically, the long-range goal might be to overcome all the disabilities and have a flat psycholinguistic profile. At present, however, the crudeness of our measuring tools and remedial procedures makes this speculation seem unlikely.

2. Minimal change: The principle of minimal change is important when working with children who are unable to make great mental leaps or unable to digest basic skills in a few exposures. This is a step-by-step process that demands full understanding of each of the minute or secondary parts that make up a skill. The developmental sequence of secondary parts must be observed in order to assure the total or complete skill. When teaching letter sounds, for example, teach one sound until it is recognized without the slightest hesitation before attempting the second sound. Trying to teach three or four sounds simultaneously produces confusion and hinders the learning process. Make

haste slowly.

3. Repetition and overlearning: Skills unused are soon forgotten. If certain abilities are considered important in the total language process, exercises devised to correct these problems should be repeated often enough to encourage over-learning. Over-learning occurs and becomes an almost automatic skill when the procedure is practiced so many ways that it becomes an ingrained process of behavior. A case in point might be the never-forgotten skill of bicycle riding. But how can faulty abilities be corrected and cemented into the behavior storeroom? Exercises using a multisensory component, as mentioned earlier, often assist in this difficult task. Bicycle riding, our earlier example, is a multisensory skill. Sound-blending can be taught, for example, with the auditory component supplied by the tutor, the visual component by the printed letters, the tactile-kinesthetic component by tracing the letters, and the vocal response would be supplied by the child's own voice. The intact sense modalities help in the recovery process and aid in the overlearning process. The multisensory breakdown also adds variety to teaching methods. As improvement becomes noticeable, the sense modalities that are reinforcing the defective area can be gradually discontinued and work will continue with the now-functioning, but still ailing problem area.

Retroactive and association inhibition are two long-recognized, but largely ignored, concepts that interfere with learning. Retroactive inhibition refers to interference caused by a compelling distraction immediately following a learning experience. Learning a series of words, for example, is hindered when the next activity might be exciting and boisterous. Learning is simply displaced. Research has demonstrated that cockroaches, college students and children have better retention if a period of quiet follows a learning experience.

Associative inhibition refers to interference caused by teaching two closely related concepts, thereby causing confusion. Gibson (1941) demonstrated this while intermixedly teaching related visual forms, showing that learning was more difficult as the similarity of the stimuli increased, particularly if different responses were demanded. Repetition leading to overlearning will minimize this problem.

4. Distributed versus mass practice: Short, intense remedial sessions are more effective than longer periods of instruction. The child is operating in his weakest mental ability and usually tires quickly, thereby losing efficiency. Those who have had a broken arm or prolonged illness know the discomfort of an overly ambitious convalescent period. The tutor can and should demand complete attention and full participation when working for short periods. If the period is to be lengthened, the time should be filled with several types of activities, each employed for short durations and with less intensity. The novelty of each new exercise will lessen the fatigue factor.

5. Accuracy versus speed: The goal in a language program should be centered on accuracy or excellence of performance. Speed exercises create confusion and encourage poor work habits and inefficient learning. With familiarity comes speed — a naturally nurtured speed.

6. Active versus passive learning: Research and observation have long demonstrated that active participation in the learning activity produces more efficient learning. The child is able to maintain interest and attention for longer periods of intense teaching, and benefits both quantitatively and qualitatively. The teacher is able to exert some control over the attention factor while the child is actively involved in the learning process. The multisensory component aids in maintaining attention and provides a broader base for learning. When a child expects to respond to the demands of the activity, he is more alert and directed.

7. Immediate knowledge of results: This principle is perhaps the most important, but the least practiced, in education today. Efficient learning depends on how quickly

the learner is made aware of the accuracy of his answer. The shorter the time span between the response and the knowledge of the results, the better the learning experience. Teaching machine programs effectively utilize this important concept. The University of South Florida, in Tampa, reports impressive results with teaching reading to retarded children using teaching machines. The children, in eight weeks, learned from two to six times the number of sight words than they had learned in the last four years of traditional classroom teaching. Definite information is more easily assimilated than the ambiguous. Immediate knowledge of results helps remove the ambiguous in the learning experience.

8. Reinforcement: Positive reinforcement (reward) and negative reinforcement (punishment) are important concepts in theories of learning. The programing movement is currently responsible, in part, for emphasizing the concept of self or internal reinforcement. Self-reinforcement is based on the concept of satisfaction derived from success through achievement. Success is nearly assured in programed material, therefore the child derives greater pleasure from his achievement which in turn produces greater drive and effort. Children who profess a dislike for reading really dislike constant failure. The professionally produced program is developed by a team of experts who may spend months developing and refining a certain topic. Their speciality is developing success. Few classroom teachers have this opportunity to break down concepts into their smallest parts. Success, if earned through genuine effort, is an important ingredient in the educational program, for both teacher and pupil. Teacher enthusiasm also adds to the reinforcement process.

9. Motivation: Motivation refers to interest and drive in an activity and is usually measured by the effort expended. Like reinforcement, meaningful success is important in developing motivation. As the child achieves greater language skills he is able to perform more varied activities. Confidence is often the result of success and this encourages a freer exploration, which provides greater experience and lays the pathway for the development of higher mental abilities. Motivation has become a by-word in American education, but is often sought in artificial and non-meaningful activities.

10. Transfer of Training: Transfer of training is perhaps the ultimate goal in education. The ability to use a concept in other, seemingly unrelated, situations. The humble concept of the two plus two may eventually be put to use in counting change. Principles of programing help assure the transfer of training by providing clearer understanding of the material learned and prohibiting far-reaching generalizations that may be apparent to only the teacher. Transfer of training, or making generalizations, is guided systematically, rather than left to chance, in an organized program.

Principles of programing used individually are effective, but if used collectively, are capable of producing highly efficient learning. These concepts of learning can be effectively employed in all areas of teaching. The principles of programing are not restricted to psychlinguistics.

In summary, differential diagnosis refers to the individualized, scientific examination of the total language process to determine if there are defects that could interfere with the normal learning process. Differential diagnosis leads to differential remediation. Differential remediation refers to programs of remediation based on correcting specific disabilities within the individual's language process. A multisensory breakdown is suggested to aid in the process of developing varied forms of remediation that fit the type of disability. Ten principles of programing are discussed that act as guidelines for establishing and evaluating remedial programs.

The possible implications derived from this investigation are varied, but meaningful. This study will hopefully yield information concerning the educability of psycholinguistic abilities. It will provide information about the advisability of setting up programs of remediation based on psycholinguistic deficiencies. It could demonstrate how such programs affect performance on intelligence tests and tests of other perceptual and cognitive abilities. It will hopefully provide data on the reaction of different age and ability groups to specialized programing.

Though this is considered a pilot study, the results of the study should indicate the direction research could take in developing screening and diagnostic instruments, more effective programs and methods of teaching, and more precise techniques of evaluation. Information of this sort would aid the programs in public school special classes, institutions and residential centers dealing with retarded children. Generalizations made from studies such as this could encompass related areas of education, such as the reading disability, the slow learner, and the trainable mentally handicapped. The results of the study may suggest that greater emphasis should be placed on early psycholinguistic screening and programs. The effect of the goals of teacher education are speculative.

The idea of a cure-all in education is hopefully disappearing. Many special forms of remediation have been found successful with some children, e. g. Frenald, Gillingham, Montessori, Kephart, etc. Perhaps the concept of differential diagnosis will be the impetus that will bring all of these various methods into the classroom — but reserved for children who can best profit by that particular method or approach. The EMH classroom will become truly remedial in nature.

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BEHAVIORAL DISORDERS

THE EFFECT OF IMMEDIATE FEEDBACK ON STUDENT ANXIETY: A CASE STUDY, AN HYPOTHESIS, AND A PROPOSAL FOR NEW RESEARCH

Peggy L. Campeau

A Case Study

Since joining the Instructional Methods Program at the American Institute for Research, I have been involved in classroom research to evaluate the use of programed instruction. One of the more fascinating aspects of my work has been the observation of teacher and student behaviors in the classroom during experimental periods. By way of introducing the main subject of this paper, I'd like to tell you about a very remarkable boy who served as a subject in an experiment we conducted at a high school in the San Francisco Bay area.

This classroom experiment lasted thirty days. During that time, students in the experimental classes spent the first part of the class period in teacher-led group discussions and the last part of the period working on a programed-instruction assignment which they completed as homework and turned in the next day. Richard was in one of the experimental groups, and he first came to my attention during group discussions. Whenever he was called upon to answer a question, he stared at his desk and made no reply at all. His face was expressionless. He did not appear to be either embarrassed, insolent, or inattentive. Richard apparently followed class discussions and listened to comments made by other students, for occasionally he would offer a tight smile when the teacher or one of his classmates made a particularly witty remark. But Richard's response to a direct question was always the same: down-cast eyes, inscrutable countenance, and a very awkward silence.

Richard's cumulative record file in the counselor's office indicated that, although his school grades were very poor, his scores on psychological tests of mental ability were above average. His counselor of three years was not at liberty to divulge complete information, but he did indicate that notations on Richard's cumulative record card and in a sheaf of progress reports submitted by his teachers provided evidence that his difficulties in school had a long history. Richard's inability to perform in class was most acute when the boy sensed he was being evaluated. He had consistently refused to answer questions directed to him in class, and it was not unusual for him to turn in completely blank tests, or tests with entire sections left blank. The school district retained a psychologist who visited schools to meet with students who had been singled out as manifesting behavior disorders. On the recommendation of his counselor and teachers, Richard had been referred to the school psychologist during his sophomore year. Data from these sessions could not be released.

The dynamics of Richard's inability to perform in situations in which he felt he was being evaluated could probably be derived only from prolonged therapeutic treatment. However, analysis of behavior disorders was not within the scope of our study — we had simply assumed we would be dealing with a *representative* group of public high school seniors. Richard stood out because of his *unrepresentative* incapacity to respond at all in evaluation situations.

As I indicated earlier, students in the experimental groups received daily programed-instruction assignments. Some of the programs required students to make one or two word responses as they read through the material. Other programs presented a few paragraphs of material and then required students to answer multiple-choice questions over that material. In format and appearance, then, the programs were closely akin to objective *tests* of the fill-in and multiple-choice varieties. But the test-like characteristics of the programs may have been offset by two factors. First, students were told that the programs were not tests. Second, the programs provided students with an indirect form of feedback which enabled them to judge whether or not they were making right responses to program material. For example, in one program style, feedback was imbedded in the textural material surrounding a fill-in blank, whereas in the multiple-choice program, feedback was imbedded in an explanatory sentence which appeared at the top of the following page. By intent of the programer, a program is not a test situation, even though it may be perceived as a test by the student. Frequently in our experiments, students will ask if they are going to be "graded" on the program, even though we have emphasized that the program is not a test.

I do not know if Richard perceived his program assignments as tests, in spite of an announcement to the contrary. At any rate, during our month-long experiment, he not only turned in the daily programed-instruction assignments, but he turned them in complete — all multiple-choice and fill-in items answered. One might reason that Richard was able to respond to this evaluation situation because the feedback provided by the program supplied him with the confidence and security he needed in order to make the required responses.

Richard's test performance was especially surprising. Following each unit of programed instruction, the class was tested as a group. Tests consisted mainly of multiple-choice and true-false questions. Richard scored so high on the first test, his teacher was convinced he had cheated (despite active monitoring); but he continued to score exceptionally well on multiple-choice and true-false items in the next two tests over the programs. Richard's unexpected success undoubtedly was related to having initially learned the criterion material by programed instruction — but how? His long history of negative reactions to evaluation by conventional classroom methods, as opposed to his extremely positive reaction to what he may have perceived to be evaluation-by-programmed instruction in our experiment prompted me to consider this question: Might there be systematic relationships between certain features of programed instruction on the one hand and certain measurable personality variables on the other?

A Proposed Experiment

The U. S. Office of Education recently funded my research proposal to experimentally investigate the relationship between the anxiety level of the child and whether or not feedback is provided in learning by programed instruction. Specifically, I am testing these hypotheses:

When matched on ability . . .

1. High-anxious children will do better than low-anxious children, if programed instruction provides feedback.
2. Low-anxious children will do better than high-anxious children, if programed instruction does not provide feedback.
3. Also, in learning by programed instruction, high-anxious children who receive feedback will do better than high-anxious children who do not receive feedback.

I propose to test these hypotheses by an experiment involving a four-cell design. High-anxious and low-anxious students will be identified by their responses to an anxiety scale; half of each group will receive programed instruction with feedback, and half will receive programed instruction without feedback. More will be said later about the experiment. I would like now to present the background considerations which influenced the experimental plans.

Background Considerations

These background considerations have to do first of all with feedback as a psychological dimension of programed instruction, and secondly with anxiety level as a psychological dimension of the learner.

Functions and Dimensions of Feedback

An investigation of how feedback might be used in programed instruction to enhance learning requires some consideration of the functions and descriptive dimensions of feedback. The general role of feedback in programed instruction is to provide the learner with knowledge of whether his response to a program item was right or wrong (Deterline, 1962).

Feedback in programed instruction may be provided in a variety of ways: a light on a teaching machine may flash to indicate a correct response; the feedback term simply may appear on the following page of a programed text, and so on. Feedback may consist of no more than the response term with which the student checks his own answer, or feedback may also include an explanation of why the response is correct.

In addition to giving information, a motivational function often is attributed to feedback. There is sufficient controversy on this point to warrant a short digression. Skinner (1960) considers feedback in programed instruction to be a major source of reinforcement, not only in "shaping behavior" but also in maintaining it in "strength." No attempt is made to separate feedback-as-information from feedback-as-reinforcement. However, some writers (Gagne, 1958; Carr, 1959) do make this distinction. The position taken is that supplying the learner with knowledge of whether he is right or wrong is motivating only if the learner has an "intrinsic interest" in the task. Moreover, Porter (reference in Carr, 1959) suggests that feedback may lose its motivational value over a period of time as the "novelty" of the particular learning task wears off.

The position I have taken is that whether or not feedback is motivating will depend on individual differences among learners. This position is similar to that taken by Goldbeck and Briggs (1962). That is, a student who has found learning to be an unsuccessful and frustrating experience may be positively motivated by observing (via feedback) that he actually is able to give right answers as he proceeds through the program.

Individual Differences and Programed Instruction

Before turning to a consideration of anxiety level as a psychological dimension of the learner which may be related to whether or not feedback is provided in programed instruction, it will be useful to briefly point out the nature of attempts which already have been made to adapt program styles to differences among individuals.

The fact that individuals differ from each other in terms of general ability and special abilities, aptitudes, attitudes, experiences and needs has been established in and out of the laboratory (Anastasi, 1958). To a certain extent, research in programed instruction has reflected this interest in individual differences. Some researchers have advocated different programs for the bright and for the dull. Others have sought to employ computers to modify the program as the student goes along. Campbell (1961, 1962) has attempted to use the by-pass form of branching programs. Others have speculated about qualitative differences among students in style of thinking or in previous study habits which might tend to make one style of program suitable for student A but a different style for student B.

Although some promising data have resulted from the above types of effort, in general, interactions between program style and individual intellectual differences have not been nearly as striking as might be expected. Remarkably little research has dealt with kinds of non-intellectual differences among individuals which could be capitalized upon to improve the adaptability of programed instruction. Yet common experience as well as research tells us that personality differences influence academic achievement.

Anxiety as a Dimension of Individual Differences

S. Sarason (1961) has stated that a highly anxious child will be at the greatest disadvantage when he has to decide for himself how and when he is going to respond. It is exactly this type of guidance which programed instruction provides; in addition, the provision of feedback can serve as a reassurance that the responding is adequate. It is my belief that non-intellectual psychological dimensions of the learner may be relevant to the problem of adapting programed instruction style to the individual. As I have indicated, the single, non-intellectual variable selected for this study is the learner's level of anxiety.

Some investigators have attributed energizing properties to anxiety, such that anxiety adds to the total drive present in the individual, resulting in an increased "reaction potential" for various competing response tendencies. (Whether or not a response is actually made would depend upon whether the strongest of the response tendencies was pushed above threshold.) Descriptions of this sort are most typical of one group of investigators (Farber, 1955; Spence, 1958; Taylor, 1956).

A different function of anxiety is emphasized in the Sarason-Mandler studies (I. Sarason, 1957, 1958, 1961; Sarason and Mandler, 1952; Mandler and Sarason, 1952; Sarason, Mandler, and Craighill, 1952). Here, anxiety is described with an emphasis on its stimulus properties, such that anxiety elicits responses which may not have been elicited if the individual were not anxious. These "anxiety responses" could be relevant to the task, or irrelevant. In the sense that anxiety is still viewed as an energizer, the "drive" theory of the Iowa group is recognized as being valid, but is de-emphasized. The theoretical model of anxiety which will form the basis for the hypotheses to be tested in the proposed study is derived from the extensive work done by both of these groups.

The Model of Anxiety and Experimental Plans

Three assumptions are basic to the model:

1. It is assumed that whether or not anxiety feelings will be present depends on the characteristics of the task situation and on the strength of individual responsiveness to such characteristics.

2. It is assumed that whether or not anxiety will enhance or interfere with learning depends on the student's level of anxiety.

3. A related assumption is that, under threatening conditions, irrelevant responses are elicited to a much greater degree in students with a high level of anxiety than in other students. (However, under non-threatening conditions, the arousal of interfering responses would not necessarily be expected for scorers at either high or low ends of the anxiety distribution.)

With these assumptions in mind, the model of anxiety may now be described. Anxiety will be considered as a learned drive with the characteristics of a strong stimulus. When anxiety has been learned as a response to situations involving intellectual achievement, two types of responses will be elicited in comparable situations: (1) responses which are relevant to the task, and (2) responses which are not relevant to the task. Logically, task-relevant responses to anxiety lead to task completion, while task-irrelevant responses to anxiety interfere with task completion. In terms of the model, task-relevant drives are produced by anxiety (as a stimulus) and by the task (also a stimulus), and facilitation of performance is a result of the summation of these task-relevant drives. Conversely, responses to anxiety which are *not* relevant to the task are incompatible with task-relevant responses, and they therefore interfere with performance.

Now . . . how is all this related to an investigation of the interaction between the learner's level of anxiety and whether or not feedback is provided in programed instruction? The model of anxiety just described holds definite implications for the proposed study:

1. *One assumption of the proposed model suggests that whether or not anxiety feelings will be present would depend on the characteristics of the task situation and on the strength of individual responsiveness to such characteristics.* Withholding feedback from the learner is admittedly a *potential* threat, in that the strength of individual responsiveness to this learning condition determines whether or not that individual will perceive the withholding of feedback as threatening. However, the likelihood that withholding feedback *will* constitute threat is strengthened by the following experimental conditions: (a) the programed-instruction task will be completed in class without help from the teacher or classmates; (b) the programed instruction will require written answers to provide an indicate of task-relevant behavior; (c) such forced responding *without* feedback may give a student the "set" for being evaluated (partly by generalizing from testing situations). On the other hand, provision of feedback in the programed instruction should create a potentially "low-threat" learning condition, in that the test-like character of the program would be removed by making answers readily available to students. (The use of the term, "low-threat," allows for the fact that a chronically high-anxious individual may still interpret the programed instruction as personally evaluative; and therefore, even provision of feedback could not be expected to produce a truly non-threatening condition.)

Development of the two versions of the program that this experimental plan calls for will, by no means, be an easy matter. In the *feedback* version, the difficulty of the program and the nature of contextual cues will have to be such that feedback does not become superfluous. On the other hand, the level of cueing must be great enough to enable learners to come up with correct responses in *both* versions of the program.

2. *Another assumption of the anxiety model stipulates that whether or not anxiety would enhance or interfere with learning would depend on the learner's level of anxiety.* Irwin Sarason (1957, 1958, 1959, 1961) and Seymour Sarason and others (1960), have conducted studies in which separate scales were used to measure the subject's level of *general anxiety* (anxiety experienced in a wide variety of situations) and the subject's level of *test anxiety* (anxiety experienced in an evaluation situation). I plan to administer both a general-anxiety scale and a test-anxiety scale to all subjects. However, since the relationship existing between general anxiety and test anxiety is far from clear, there appears to be no justification for combining scores on the two scales. Instead, a *test-anxiety scale* will be used to identify high- and low-anxious students in the present study.

The decision to use a test-anxiety scale as the basis for forming high- and low-anxious groups is based on the assumption that the more specific the anxiety scale is to situations which are similar to the experimental situation, the more will the measure of anxiety be related to performance. In the present study, it is expected that learners will perceive programed instruction without feedback to be more test-like than programed instruction with feedback. Even the program version which does provide feedback may be perceived by students to be an evaluation instrument, since it will elicit responses. Thus, it seems reasonable to expect a test-anxiety scale which deals exclusively with the learner's feelings in *evaluation* situations to exhibit a higher relationship to performance under the experimental learning conditions than a general-anxiety scale which does not deal with situations so clearly like the experimental learning conditions. In analyzing the results of the study, however, both general-anxiety scores and test-anxiety scores will be correlated with scores on the criterion test. It is expected that the correlations obtained will verify the assumption that the test-anxiety scale was more specific to the experimental situation than was the general-anxiety scale.

3. A related assumption stipulates that under threatening conditions, high-anxious individuals will make more task-irrelevant responses than low-anxious individuals. Particularly on test-anxiety scales, high-anxious students are separated from others by the greater frequency with which they admit to perceiving evaluation situations as threatening and to responding to their feelings of anxiety with task-irrelevant responses. According to the anxiety model, the anxiety produced by withholding feedback from high-anxious subjects would increase the frequency of task-irrelevant responses, thereby disrupting the performance of these students. Low-anxious students (who, by definition, are relatively "anxiety-proof" in a test situation) would be less likely to perceiving the same no-feedback condition as threatening.

On the other hand, the facilitating effect on performance of the low-threat condition may be greater for high-anxious learners than for low-anxious learners. According to the anxiety model, provision of feedback to the high-anxious learner would have two effects: (1) it would minimize task-irrelevant responses to anxiety by reducing that anxiety, and (2) the task-relevant responses the learner did make would be reinforced as he proceeded through the program, thereby increasing the response strength of these task-relevant responses as compared to task-irrelevant responses to anxiety. It could therefore be expected that under the feedback condition, the performance of high-anxious students would be better than their performance under a no-feedback condition. For low-anxious learners, very little (if any) facilitating effect would be predicted from providing feedback, since these individuals by definition have very few task-irrelevant anxiety responses to be eliminated, and since, because of the low-drive characteristic of these students, they could be expected to be less susceptible to the reinforcing effect of feedback on task-relevant responses.

Summary

In summary, I have presented a brief case study related to the rationale for an investigation of the relationship between anxiety and feedback in programed instruction. Expectations that high-anxious and low-anxious children will achieve significantly different performance levels under feedback and no-feedback learning conditions have been related to implications of the theoretical model of anxiety adopted for this research. While recognizing the pilot nature of the proposed investigation and the limits in scope which pertain to it, I do feel that results could have relevance not only for adjusting programed instruction to individual differences in anxiety, but also — and more important, perhaps — these results could suggest even greater changes in total educational procedures which would simultaneously reduce the negative effects of anxiety and better capitalize upon the positive effects.

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INSTITUTION-SCHOOL LIAISON PROCEDURES AS AN AID TO RE-INTEGRATION OF THE DISTURBED CHILD

John L. Johnson

One of the major concerns of persons who work with children and adults in psychiatric settings is the return of the patient to the community. For the adult, and for the child, the actual rehabilitation process is a major step toward recovery from a debilitating and often frightening illness, and the manner in which the process is carried out can be a determinent of the quality of life adjustment, after a treatment process which is often long and costly. The rehabilitation measures which the community and the institution are able to activate may determine whether the patient reaches the maximum of his physical, emotional, social, and vocational potential or whether he flounders and becomes one of the group for whom more costly and lengthly residential treatment is necessary.

In the case of the adult psychiatric patient, many projects are being carried out in institutions, special therapeutic communities, and through government agencies, all designed to aid the person in his adjustment to a sometimes familiar and sometimes unfamiliar life situation. The increase in literature on rehabilitation practices with adults reflects this growing concern.

In the case of the child psychiatric patient, the rehabilitation process is less clearly established since there is seldom a need for the classical form of vocational rehabilitation and its inclusive implications. The rehabilitation process for the child is, by necessity more crucial, since the child, by his very nature, is more susceptable to the stress of unfavorable community conditions and attitudes. In many instances, the place in which the child does his "life work," the school, is that very same institution which may have contributed greatly to the disorganization which precipitated his entrance into psychiatric treatment.

The issues most centrally involved in the discharge and placement of child patients are: (a) the problems of residence, usually the consideration of foster care or more recently the trend toward "half-way houses," and (b) a consideration of the dynamics of the child's return to public school. The purpose of this paper is to explore this second issue and to attempt to focus attention upon the process of effecting a beneficial school placement following discharge from a psychiatric hospital. Particular emphasis will be placed upon the necessity for close liaison between the psychiatric institution and the school to which the child returns.

The literature, while being far from complete, provides a frame of reference from which to view the issues involved and appropriate references will be utilized to illustrate the nature of the problems which the child may encounter. Two cases, taken from the author's experience as a teacher and educational supervisor in a psychiatric hospital (Lafayette Clinic, Detroit, Michigan; a 146-bed psychiatric hospital, the research and training unit of the State Department of Mental Health affiliated with Wayne State University), will be utilized to demonstrate the type of situations actually encountered and the crucial nature of the liaison work which our experience seems to show is necessary.

The Literature

The frame of reference which the literature provides is from both institution and school viewpoints and the major issues seem to indicate a need to focus attention upon the communication process, the attitudes of the school, and the methods which will promote acceptance of the disturbed child as an individual who needs realistic handling. Johnson and Rubin (1962) state that "recognition that these children will continue to have difficulty in academic work and behavior may help in providing, when necessary, an adjusted school schedule and classroom atmosphere and altered teacher attitudes, all of which will continue to be supportive to the child's emotional growth."

Hollister and Goldston (1962) outline various considerations in the process of planning for and returning the patient to regular class. Among other things, they suggest preparation of the regular teacher through anticipatory guidance, providing essential support through adequate supervision, and crisis help.

Klapman, Slagel, and Morino (1964), in a very recent paper, describe the rehabilitation process for children discharged from another psychiatric hospital. They direct primary attention to the role of the hospital staff in facilitating the child's acceptance by the community. They describe a program of visits to community agencies, to foster parents, and schools through which they seemed to help both the children and the concerned adults understand each other better. They conclude that "sensitivity to the needs of the many persons involved was essential if we were to establish a stable, therapeutic environment for the child discharged from a psychiatric hospital." Newman (1960) suggests placement in public school classes as a "transitional phase" in the treatment of disturbed boys. Her paper contains very valuable considerations concerning selection of appropriate schools (she gives both positive and negative criteria) and information on the nature of the communication network which is necessary to maintain relationships between the treatment center and the school, while the child remains a resident of the treatment center. Newman specifically calls attention to the importance of the classroom teacher's competency and personality and the role of the principal in establishing the tone of success or failure. Other criteria which Newman considers important are the organizational structure of the school, the actual class placement, and the provision for communication between the school and center in the form of "a knowledgeable and sympathetic person from the school system" and "an educationally sophisticated person from the institution."

Brundage (1963) in his paper: "Helping institutionalized student re-enter public schools" describes a liaison program for adolescents in California. An important part of this program was the provision for group meetings between school contact people and institution staff for an entire county wide school district. The focus of these group meetings was on the general problems of rehabilitation rather than the return of specific youths. Stark and Bentzen (1958) describe a program in which disturbed children remained in their regular classrooms and a full time "project teacher" and a consulting psychiatrist helped the regular school staff deal with the problems of these disturbed children. One of the most beneficial outcomes of their study appears to be the demonstration of minimal services required for emotional support of disturbed children, many of whom were not involved in psychotherapy. Another important outcome was the process by which the educator was given a genuine understanding of the language of the clinician and, in time, some understanding of the psychodynamics of the children's behavior. They also concluded that this process created a climate of concern for the mental health of the total school population. This outcome would seem to be a universally generalizable factor from most studies of this type.

The problem of communication between clinician and teacher is discussed by Charney (1959) who considers the situation where disturbed children attend school in the normal community setting and undergo psychotherapy with a clinician not immediately connected with the school unit. He advocates an extension of such out-patient treatment to the child's total life situation with the therapist communicating an "understanding of the child's dynamics in the real-life concepts of the layman without retreating into wordy technical formulations of psychodynamics . . ." Charney recognizes the need for mutual respect of role and also, that "communication between therapist and school may help the teacher develop a meaningful emotional understanding of the disturbed child and an understanding of his own relationship difficulties with this child around which specific treatment techniques may be attempted in the classroom." Haan (1957), in a paper entitled: "When the mentally ill child returns to the school," describes four problem areas which must necessarily be clarified for the benefit of the teacher's effective handling of the child and the child's successful adjustment. She discusses, in some detail, the problems of control and permissiveness, relations with other children, academic work, and the role of other adults. This paper would seem to have special relevance for the classroom teacher to help determine what information is required and for the institution staff to determine the most helpful information for the teacher.

Graver (1958), after a brief description of the therapeutic process (in educational language), focuses on the problem of the teacher's role in rehabilitation of the child after psychotherapy, with particular emphasis on the problem of acceptance. He discusses the need for acceptance on an active or feeling level rather than mere verbalization. Graver also gives guidelines for helping the pupil return to class and seems to advocate teacher preparation and "natural return" for the child. Harper and Wright (1958) view the problem partially from the other viewpoint, that of the child. They describe the fears that the disturbed child may harbor and offer guidelines which may enable the teacher to provide the child an initial security producing experience and thereby serve as a "stepping stone to progress in the school."

Finally, a more formal study is Johnson's (1962) follow-up of former child psychiatric patients. Particular concern was paid to the academic and behavioral adjustment of these former patients who were attending school in public school settings. An important part of this study was to determine how valuable placement information, such as academic progress in the hospital, current academic status, and suggestions about methods of handling and control, could be disseminated to the school and classroom teacher. The schools indicated that a written terminal report, periodic follow-up forms, and personal visits to the school by hospital staff were the three most popular forms of information dissemination.

Illustrations of the Rehabilitation Process

Case 1: Jim.

Jim, a ten year old boy, was referred by a child guidance clinic because of his negative, stubborn behavior both at home and in school. He has periods in which he refused to communicate, particularly with his parents, and these had become more frequent prior to his admission to the hospital. Jim showed gradual progress in his treatment and at the end of approximately twenty months, plans were made for his discharge and return to family and community. Jim was to be discharged during the summer so that he could accompany his family on vacation and then enter school at the beginning of the school year. The school system to which Jim was to return was notified and it was suggested that a visiting teacher be assigned to aid in the transition period. The request was granted, and a comprehensive terminal report was prepared and forwarded to the visiting teacher. The information in the report included an interpretation of Jim's intellectual capacity, achievement test scores with an interpretation of his current academic standing, a complete behavioral description with explicit instructions about the type of classroom conditions which we felt would be most beneficial, and the characteristics of an "ideal teacher" for Jim. This report was written by the hospital teacher in "teacher-oriented" language but yet communicating the necessary clinical information. A concerted effort was made by the teacher and his supervisor to project a positive image and to capitalize upon the strengths presented by Jim. An additional consideration was the fact that Jim was chronologically due to enter junior high school, although there was some doubt about his academic strength and ability to cope with the known stress of the multiple class situation in junior high school. It is to be noted that all of this communication was carried out by telephone and that the visiting teacher had not had previous contact with Jim or the hospital. The visiting teacher made contract with the neighborhood school which Jim had attended and siblings were now attending. The prospect of Jim's return, in three months, was greeted with overt negativism based upon Jim's previously poor behavior and the additional fact that his father, who was well known in

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the community, had a reputation of being critical of the school and was described as "very difficult to get along with." These conditions, along with Jim's own expressed anxiety, prompted a decision for Jim to attend another elementary which was reasonably close to his home. This school assignment, as it turned out, was able to provide an unusually good teacher, an unbiased principal, and allowed Jim to avoid the embarassment of being in a class with his younger sister. The decision about this school placement was made by the school system administrator upon recommendation from the visiting teacher with support from the hospital terminal report. Active communication was terminated due to school vacation but was re-established, by the visiting teacher, upon the re-opening of school. In the course of communicating with the visiting teacher, the hospital staff had suggested that a conference would be advisable because of the possibility that Jim's somewhat negative behavior might be threatening to the school staff. It was decided that this conference should be held about three weeks after Jim returned to school, as we felt that we could be of most assistance at this crucial period of adjustment. The principal concurred in this decision and arranged the conference. Attending this conference was the principal, the visiting teacher, the classroom teacher, the hospital teacher, and the hospital educational supervisor. The school staff presented its problems and the methods they had utilized and were supported for their very excellent handling and suggestions. Some intraschool attitude contagion had occured but did not seem to be a serious problem. The semester passed without incident and communication was maintained between visiting teacher and hospital teacher through telephone conversations. Jim continued to do well, both in outpatient therapy and in school and the hospital staff concurred in the decision to promote him to junior high school. Because of his fine adjustment during this period it was mutually decided to avoid the elaborate procedures which had been carried out for the first placement.

After approximately three weeks in junior high school, the hospital teacher received a crisis call concerning Jim. Jim had told one of his teachers that he had been under psychiatric care and, also by this time some informal intra-school communication had taken place. Jim's only contribution to this so called crisis had been to talk with a teacher he liked. No one in the school had observed any behavior which would indicate a serious problem. At any rate, a meeting had been scheduled for the next day and the visiting teacher wanted to know if the hospital teacher could attend. At this conference were all the teachers to whom Jim was assigned, the principal, two assistant principals (all of whom seemed to be in an acute state of panic over the "disturbed boy" in their school) along with the director of psychological services, the visiting teacher, a school psychologist, and the guidance counselor. The topic of the meeting was how to handle the disturbed behavior that in no way had been demonstrated. One teacher told how Jim had been somewhat resistant over a homework assignment and that since he (the teacher) had not known that Jim was "disturbed," the situation had been handled in the regular manner, with success, but now this teacher was uncertain about how to handle Jim since his psychiatric condition must now be considered. Another teacher said she had not known that Jim was "disturbed" and that she believed him to be just another student, until now. The hospital teacher supported the school staff in their handling of Jim, as did the director of psychological servic and the visiting teacher. The staff was also reassured that support would be forthcoming in the event a crisis occurred. It was reported later that this conference served to reduce the acute tension and that there was an even greater reduction by the time the first report period ended. Throughout all this, Jim continued to make a fine adjustment, formed peer relationships, and generally enjoyed the extra attention that was often given him during this first term. During the second term, another crisis call was received. There had been an incident between Jim and a locker room attendant which ended with Jim becoming upset and leaving school without permission. The school seemed very alarmed and once again requested that someone come to their aid. Since the contact between Jim and the hospital was now only in the form of bi-weekly out-patient visits, it was decided that his therapist would be the appropriate person to visit the school and confer with the staff. Once again, the school had managed the situation very well and only required support.

At the time of a formal follow-up, which came after Jim had been discharged for about eighteen months, he was maintaining his acceptable adjustment in school, in spite of some residual concern.

Case 2: Jerry

Jerry, an eight year old boy was originally referred by a visiting teacher from a large metropolitan school system, because of his failure to interact with other children, excessive fear of bodily injury, and inability to achieve in arithmetic, all of which became noticeable after the death of his father. The visiting teacher had been active with the school, the mother, and the boy for approximately six months prior to our first contact with Jerry. The hospital staff was immediately impressed with the thoroughness of the referral data and the interest and cooperation of the visiting teacher. It was decided to admit Jerry as our first day care patient with the goal being his eventual return to his same school after a six to nine month period of treatment. The visiting teacher was invited to attend the diagnostic, progress, and termination conferences which were routinely held, at at the diagnostic conference she was a major contributor of information about family, school, and community. At the time of the termination conference, she was able to give a picture of the climate of the school and of the attitudes that the staff might hold toward Jerry. Throughout the course of treatment she had, by plan, maintained informal contact with the school to communicate progress and to prevent the school from totally removing itself from the picture. Approximately two months before discharge the visiting teacher was to initiate the plan for Jerry's return to school. The hospital staff communicated, through the visiting teacher, the acceptable grade placement, and the characteristics of the "ideal teacher" for Jerry. The principal of the school solicited the visiting teachers assistance and together they made the choice of teacher, thereby determining the class placement and subsequent school schedule. With this information in hand, the therapist could then arrange a schedule of out-patient visits which interfered least with school routines. Approximately one month prior to discharge, a comprehensive terminal report was forwarded to the school to provide information about Jerry's current status.

It was now general knowledge throughout the school, that Jerry was to return and this prospect evidently generated considerable anxiety among the school staff who had known Jerry prior to treatment. Most of this feeling was absorbed by Jerry's prospective teacher, who by coincidence had now known him, and much of it filtered through to the principal who in turn immediately notified the visiting teacher. It was then decided that a meeting of hospital staff and school personnel would be beneficial and that the most appropriate time would be during the regularly scheduled vacation between semesters, as this would occur about a week prior to Jerry's actual return to the school. During this period, Jerry was informed of the plans, given information about his class placement, and in general was prepared to return to his regular school. The hospital staff decided that there was no reason to involve the therapist in such a meeting and that the hospital teacher and the educational supervisor could effectively communicate the recommendations, both academic and therapeutic. The visiting teacher remained active during this period and became more familiar with the specific fears of the school and these were communicated to the hospital staff as topics that might come up for discussion in our meeting. In addition, the visiting teacher initiated what turned out to be a continuing series of meetings with the actual classroom teacher. This had the effect of demonstrating the availability of support for this teacher. The meeting was held on schedule (the principal had made special arrangements for refreshments which seemed to demonstrate her interest in this project), and in attendance were the principal, the assistant principal, the visiting teacher, the classroom teacher, the librarian, the social studies teacher, the gym teacher, and Jerry's former classroom teacher, all of whom had read the terminal report. The hospital staff went over the report emphasizing specific points and answering questions. Soon it became evident that there were two divergent attitudes among the school staff. First, there were the fears of "that crazy kid" which had been generated out of Jerry's past episodes and now presented a threat to their professional security based upon their perceptions of their ability to cope with his behavior in the school. Second, was their impression of the psychiatric treatment process which seemed to them to be the "doing of some magic" which had made Jerry as "well behaved if not better behaved" than their regular pupils. Other concerns were about the effect of Jerry upon his peers, the continuance of therapy, and the necessity of parent-teacher interaction. The hospital staff attempted to cope with these problems and it seemed that the total effect of the meeting was to introduce a realistic formulation of the problem for the school and the reduction of some of the fear among the staff. Once they recognized that support and encouragement was forthcoming from the hospital, the visiting teacher, and their administrator, they began to face the situation with new strength.

There were a few "bad days" for the school and Jerry, but both were able to adjust very effectively. Jerry provided an informal follow-up of his progress by bringing the hospital teacher samples of his work and his report cards during his weekly outpatient visits. At the time of a formal follow-up, about one year after his discharge, he was reported adjusting very well and had evidently solidified the gains he made during treatment.

As an aside: the visiting teachers of this metropolitan school system usually attended periodic in-service meetings and when this case became known to their administrators, the hospital staff was requested to make a formal presentation to demonstrate the effectiveness of the procedures we utilized, the worth of cooperation between hospital and school staff, and some unusual educational and therapeutic problems presented in the day care treatment of this boy. Directly involved in this presentation were the therapist, the hospital teacher, the social worker, and the chief of children's services. A direct effect of this presentation was a deluge of invitations to conduct "desensitizing seminars" at school in the school system where children involved in psychiatric treatment were in attendance.

Summary

It is hoped that the information and cases presented in this paper are sufficient to illustrate the nature and scope of the problem. One might readily note that success was a final outcome of both cases and therefore ask about the failures. It appears that it may be too early in our experience with these procedures to fix the responsibility for success or failure. Consideration must also be given to the nature of the child's problem as we can imagine the threat posed by children with histories of violence, firesetting, or soiling, particularly if these behaviors occurred in the school. We might also consider the implications of Jerry's case, in that an attitude of success may have been created by the nature of the decisions made at the time of his admission to hospital.

The final implication of this paper seems to be the demonstration of a need, in schools, for greater understanding of the mental health needs of all children. Our liaison program seemed to focus attention on this need and in our contacts about specific children, we were often asked questions about other children in the school. It would appear that some program such as "Technical Assistance" (Newman, Redl, & Kitchener, 1962) might find application in a number of the schools we visited. Our visits were limited by our inability to travel but if, for instance, "technical assistance" were available in the remote counties of our state, we would be able to totally achieve our goal of effecting a beneficial school placement for our former patients. In any event, we feel that our experience has shown that some additional service is required for child patients and also enabled us to suggest one form of rehabilitation process.

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SOME FACTORS AND SOURCES OF CONFLICT WHICH INFLUENCE THE TEACHER'S ROLE IN THE PSYCHIATRIC SETTING

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Ronald B. Robbins

Introduction

The role of the teacher in the psychiatric setting cannot be defined in terms of specific behaviors, nor is it possible to write prescriptions for this behavior. Even within each psychiatric hospital every situation is unique, and it is only by understanding some of the forces which determine roles that the teacher is able to be aware of what is expected. Sargent (1951) defines a role as "...a pattern or type of social behavior which seems situationally appropriate to him in view of the demands and expectations of those in his group..."

The role is seen as a set of expectations created by the environment. However, eventual behavior is shaped both by this set of expectations and by personal needs and experiences. Consistent with these definitions, the eventual behavior of the teacher in the psychiatric hospital can never be specifically defined except by those who are familiar with the environment and the particular personality being considered. Even then, one might expect that the role is viewed dissimilarly as seen through the eyes of different persons.

In this paper, the teacher's role is considered from three points of view: tasks, processes, and situational factors; then, sources of conflict that disrupt both the formulation and the enactment of the role are considered. Tasks refer to what is done. Processes refer to the manner in which it is being done. Situational factors refer to those considerations which envelop both the tasks and processes.

Tasks

Every teacher has specific duties or tasks which have to be accomplished. The importance and amount of time spent on these tasks varies from situation to situation. A recent research publication (NEA, 1962) divides tasks into two major classifications: (1) those directly involved with teaching, and (2) those considered non-teaching activities. Teaching tasks involve such items as correcting work, preparing materials, personal study, individual tutoring, conferences with students, teaching, etc. It is interesting to note that these tasks defined for the normal class situation are also part of the teacher's responsibilities at the psychiatric hospital.

It is possible to view each of these tasks as a continuum: at one extreme they are not important in terms of time and function, while at the other extreme they form a major preoccupation. A task location on the continuum scale varies both intra-hospital and inter-hospital.

To illustrate, we can consider individual conferences with students. At the high end of the scale we find the psychiatric hospitals, where the teacher is expected to have very close personal rapport with the pupils, necessitating repeated meetings both in and out of the classroom.

Teachers may do individual therapy with children under the direction of the team psychiatrist at this type of hospital. At the lower end of the continuum for this task, are those psychiatric hospitals which view the teacher's relation to the child primarily in terms of the traditional classroom setting. Here, the teacher would not be concerned with the task of individual conferences. In fact, if this teacher decides to have individual conferences, he finds himself in a conflictive situation.

To give an example of the task that could vary on the continuum within the same hospital, let us consider homework. A teacher at this hospital, working with students who are being prepared for attendance at an academic high school, is concerned that the students have homework handled in a manner consistent with the child's eventual placement. At the same hospital, a teacher who might be working in physical education or one whose concern is teaching primary reading to adolescent children who haven't yet learned how to read might view homework as an inappropriate task.

Examples of the way in which the continuum approach could apply to non-teaching tasks could also be given. These tasks, generally found at the psychiatric hospital, include records and reports for classes, meetings, monitorial duties, assemblies and commencement exercises, assisting administrators, and many other miscellaneous tasks which are familiar to most of you.

Tasks are the actual duties that a teacher performs. Evaluation of the relative importance of these duties determines what per cent of a teacher's time is to be allocated to each in order to accomplish the goals of the school. This type of information is of value to the present teacher or to the prospective teacher because it gives him an opportunity to measure this allocation of his time against his own personal needs and what he feels are the needs of his pupils.

These examples illustrate the impossibility of formulating a prescribed recipe for the teacher's role at the psychiatric hospital. It is sufficiently difficult to define and place consistent emphasis on specific tasks among teachers at the same institution without trying to do so for all types of psychiatric institutions.

Process

In order to carry out the duties of one's teaching position, certain processes occur at either a conscious or automatic level. Campbell and Gregg (1957) explain that process may be viewed as a continuous cycle of simultaneous, interdependent, and sequential activity which moves in a predictable direction and has discernible and predictable focal points. It is not meant that the processes in which the teacher is involved can exist apart from the job to be done, or the situation in which the job is to be done. However, it is important to note that the teacher in the psychiatric setting who wishes to study and assess these processes can do so.

There are many ways of defining the focal points along the process cycle. For the sake of brevity, only three are considered here:

1. Decision Making or Planning.
2. Actualization or Implementing the Decision.
3. Evaluating or Reappraising.

Evaluation leads back to decision making and further planning which illustrates the cyclic nature of the teaching process.

Decision making includes "definition of the issue, analysis of the existing situation, calculation and delineation of alternatives, deliveration, and choice" (Griffiths, 1959). One may wonder how many of the roles in psychiatric settings are the result of conscious awareness and utilization of the decision making aspect of the processes existing within the hospital.

Once the decisions have been made, they must be carried out. This point in the cycle comprises most of the teacher's role and consumes most of his time. It is at this juncture that the teaching and non-teaching tasks assume importance.

The third step in the process involves the evaluation and reappraisal of the initial decisions in terms of the way in which they have been actualized and in terms of new factors which are now operating or known. This stage in the process assumes that in the light of experience and new information, further and possibly different decisions may be made. Hence, this third step in the process leads back into the first step and the cycle is completed.

While for the most part these processes occur without the teacher's awareness, knowledge of the cycle will guide him in learning what is expected of him and the way in which this set of expectations is derived. The extent to which his associates have considered the various junctures of the process probably is an indication of the degree to which they have thought out the goals and directions as well as the specific behavior required for the teacher's role.

Situational Factors

Situational factors serve to limit and define both tasks and processes at the psychiatric hospital. Among many crucial focal points that can be considered within the environment are the enabling body, the hospital setting, and the profession.

The enabling body which includes the state constitution, court decisions, the state legislature, the governor, and the specific department of which the hospital is a part, exert tremendous influences on the teacher's role even though they are far removed from the classroom. These government agencies are in a position to determine primary hospital policy which eventually works its way down to the classroom. They also have control over the budget-making process which can severely limit or provide for the adequate growth of a school. These agencies, for the most part, even determine the admitting policy and hence, the type of students with which the teacher works.

Of more immediate concern to the teacher is the hospital setting in which he is working. The hospital, through its present employees and its own history, has a power structure which determines the allocation of materials, functions, and corresponding statuses. The hospital also chooses the behavior systems which will be used by certain employees. The technical behavior system defines the employee's role in terms of specific task activities and their application. Formal behavior systems are the broad rule and regulation which relate the individual to the entire hospital. The non-formal behavior system refers to the deviations in the technological system which are tolerated by the institution. Finally, one has the informal, inter-personal relations of a voluntary nature which are known as the informal behavioral system (Dubin, 1958).

Possibly most important in the hospital setting is the determination of who works with whom. The teacher's own gratification and self image will, for the most part, be primarily influenced by his immediate associates. These are usually the persons to whom he looks for the determination and evaluation of his own role.

The teacher's role is also shaped by the profession and its set of expectations. Through the teacher's training at a university or college, he has come to anticipate that there will be certain expectations regardless of the place in which he is employed. The books or journal articles that he reads, as well as the conventions he attends, help him retain a professional link with other teachers.

The hospital also helps to determine to what extent his role and the individual's own personality will be crucial in the resulting behavior (Getzels, 1960).

To give an example from a different setting, one pretty much knows what the behavior of an army private is when he passes an officer on the street. Despite the personality of the private at the time, most people would expect him to raise his arm in salute. On the other hand, the variety of behaviors which can be attributed to artists, not all of which are of a beatnik nature, are examples of the ways in which personality is more important in the final behavior of the individual than in institutional expectations. For each teacher within the psychiatric setting, there are limits which guide the extent to which his personality and the institution's expectations interact to define his behavior.

Sources of Conflict

Jacob Getzels (1960) had indicated a number of areas which are sources of conflict in a social system. These have particular relevance to a psychiatric setting where the inter-personal relations are elaborate and involved in both the formal and informal behavioral systems.

Personality. Individual personality is not consistent from minute to minute. Internal dynamics over a period of time often produce conflict in resulting behavior, and make it impossible to act always in a consistent manner. Self-awareness of this problem or when it is pointed out tends to produce anxiety.

Personality — Role. Probably the most obvious area of conflict is that in which the individual's needs are at variance with the expectations made upon him. While ideally the individual should be able to fulfill both the expectations held for him by the institution and the needs of his own personality, this is not often the case (Hills, 1960). No doubt a teacher who is able to accomplish this fact successfully will be very satisfied with his present position. For example, a very compulsive teacher who is successful in dealing with large classes of students may find that he cannot relate in the flexible manner required by the small classes and the nature of the students found in the psychiatric setting.

Role Definition . Many conflicts arise because different people within the hospital setting have different expectations of the teacher's role. For example, at Chicago State Hospital it is common for the school principal to expect certain behavior from the teacher while the psychiatric team to which this individual is assigned, expects another. Sometimes his own colleagues prefer a third set of expectations. This means that the teacher is then in a position of having to choose one of these three sets of expectations for his behavior, or he must try to operate with a fourth type of behavior which, hopefully, will mediate among the three. In any event, the teacher is in a bind which is extremely anxiety-producing.

Role — Role. The teacher often finds himself holding two or more roles at the same time. For example, in the psychiatric hospital a teacher acting as a counselor who is expected to work in a therapeutic relationship with a particular child may also have this child in one of his classrooms. The set of expectations in dealing with the child in the classroom may demand an entirely different way of relating to him than the teacher wishes to as a counselor. This is a very common conflict occuring in a psychiatric hospital and affects not only the teachers, but is very confusing to the child who has to see the same teacher in many different roles at the same time.

The teacher at the psychiatric hospital exists in more than one social system. Each of the social systems makes expectations and demands on the individual which, in many cases, are at variance with one another. For example, a weekend activity which is important to the institution and which would require the teacher's presence might conflict with family expectations. The teacher is then forced to make a decision. No matter which way he should decide, he is going to enter into conflict.

Role Changes. Often within a psychiatric hospital, the teacher finds that he is promoted or transferred in such a way that his role changes. In many cases, the teacher who has found satisfaction with his previous role and the related tasks now finds it difficult to shift his efforts. On the other hand, the individual who is replacing him is anxious to take over the tasks that he has vacated. The pressures placed upon him, as well as his own realization of the situation, makes for a very difficult time.

Process Conflict. A teacher may find himself more concerned with carrying out his assignment than with the evaluation or decision-making phase. Yet, the particular psychiatric teams on which he is working may be more concerned with the decision phases of his role. Often, meetings spent in decision-making mean the cancellation of classes of other activities which are important in the administration of his teaching duties.

Conclusion

It can be concluded from this paper that no simple definition or set of expectations can be formulated for the teacher's role. However, the teacher does have an opportunity to learn about the forces that shape his behavior in terms of tasks, processes, and situational factors. In addition, he also has an opportunity to determine why certain aspects of his position in this type of work are anxiety-provoking.

It is hope that this presentation will provide a frame of reference in which to view your own particular role in the psychiatric setting.

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RECENT TRENDS IN EDUCATING EMOTIONALLY DISTURBED CHILDREN

Richard J. Whelan

The purposes of this presentation are to develop a brief historical resume of educational programs for emotionally disturbed children up to the present time, and to discuss certain specific experimental research contributions which may have important implications in terms of planning future learning experiences for these youngsters.

In 1954 there were ten colleges and universities which listed course sequences of preparation for teachers of emotionally disturbed children. These programs offered a bare minimum of academic training, and most had no demonstration classes which could be utilized for practical student-teaching experiences. Historically, then, emotionally disturbed children were educated in residential treatment centers by teachers who were originally prepared for teaching the elementary grades. These people acquired specific techniques or approaches applicable to educating emotionally disturbed children by trial and error, and empirical observations of what seemed to work and what did not work. Children who were not considered to be seriously enough emotionally troubled to warrant hospitalization were remanded to the jurisdiction of public schools. There, because of the dearth of trained educators who could plan appropriate programs for disturbed youngsters, regular grade teachers were expected to absorb and educate these children within the normal classroom setting. The teacher, often in desperation, applied recommendations provided by school and community mental health personnel. When these diverse and often diametrically opposed approaches failed to produce significant gains in disturbed children's socio-educational-emotional lives, the teacher often floundered in a sea of dismay, frustration, and feelings of ineffectual performance as an educator. Emotionally disturbed children, the most important participants in the process, were either excluded from the school program, or promoted from one grade to another in the rather weak rationale that they should have social contact with their normal peers.

It is obvious that there are not enough residential treatment centers for all emotionally disturbed children; and while it is not necessary to place all children with a semblance of behavioral deviation into special classes, it has become apparent that we, as educators, have not fulfilled our obligations and responsibilities to troubled youngsters who come to us for an education. This very vital problem has been highlighted recently as a result of national legislation which provided financial support for students and universities concenrned with preparation of teachers to work with emotionally disturbed children.

Educators of emotionally disturbed children can no longer plead lack of general interest by the community, or excuse inadequate program development because of minimal financial support. In light of these recent important developments, it is appropriate that we examine what has been accomplished in previous years, what trends we should investigate or discard, and what pathways we should explore in the future.

Residential treatment centers for emotionally disturbed children have usually provided some school experiences within the clinical setting. Most teachers, lacking any basis for implementing an educational program for disturbed children, turned to the clinical director of the center for advice, answers, terminology, methodology. The clinician, usually trained in a certain philosophical school of treatment, attempted to superimpose this model upon educational experience provided within the school. Teachers were expected to use the school setting as an environment for allowing children to safely act out their unconscious conflicts, anxieties, and fears. Limits were kept to a minimum in the belief that a permissive atmosphere in which the teacher utilized cues from the children as program guides would offer the best possible milieu for the amelioration of emotional problems. This type of educational approach uses the psychoanalytic model of treatment as its rationale. It also assumes that emotional conflicts must be resolved before children can make academic progress, or before they can learn.

Proponents of this particular educational approach have recorded the results of their experiences in numerous books and articles. However, these reports are usually quite descriptive in nature, and do not describe the results of follow-up studies, nor utilize control of variables as a device to test the merits of successful claims. Numerous outcome studies assessing the results of psychotherapy with emotionally disturbed children indicate that chance and maturation may be the factors influencing successful treatment claims. Artifacts of this nature may also be apparent when school programs based upon this treatment approach are subjected to further study.

Some professional educators and others discovered the impossibility of initiating such permissive procedures within the public school. These individuals, while operating within the broad framework of the psychoanalytic philosophy of treatment, began to stress the needs for some limits to destructive, acting out, free floating behavioral manifestations. Teachers were still expected to respond to cues from the child in terms of subject matter, time for school, amounts of work to be completed, and the setting of limits, but the child's environment was somewhat more controlled than in a permissive setting. The concept of "coping" with each individual departure from normal adaptive behavior by the child was promoted as an effective teacher methodology of dealing with wuch deviations. As in the permissive approach, this specific rationale promotes the uncovering and acting out of conflicts residing in the unconscious of emotionally disturbed children; this process, it is believed, has to be completed before the children can be expected to participate effectively in the school setting. Again, there is a lack of research evidence to lend credence to this modified analytic approach of educating disturbed children.

During the past six or seven years, increasing numbers of educators of emotionally disturbed children in residential treatment centers and public school settings became dissatisfied with educational programs based upon philosophical tenents which were difficult to research, and which did not appear to be productive in terms of academic, social, and emotional growth for disturbed youngsters exposed to such treatment. In criticism of this approach, Heil et al, state that educators have tended to interpret permissiveness as accepting the child's behavior instead of accepting his feelings and guiding his behavior. Heil et al, Strauss et al, Cruickshank, and more recently, Haring and Phillips, have questioned the effectiveness of previous educational experience provided for emotionally disturbed children. Haring and Phillips have introduced and expanded the concept of structure as a pattern or model for therapeutic intervention into the social, emotional, and learning lives of disturbed youngsters. Objective child study methodology consistently records the behavior of disturbed children to be characterized by disorganization, random non-goal directed activity, destruction, excessive fearfulness, and at the other end of the continuum, withdrawal from contact with the environment. A combination of various bits of information, plus an experimental program conducted in Arlington, Virginia, by Haring and Phillips, led the advocates of the structured approach to conclude that a classroom for disturbed children must be one in which clear direction, firm expectations, and consistent follow-through are provided. These are the necessary ingredients if disturbed children are to achieve academically, successfully order their learning, and regain, or gain for the first time, productive patterns of behavior which signify general well being and mental health.

The significance of the structured approach has many implications for educational planning for disturbed children. It lends itself more readily to research designs; it takes into account the total management of the child's life by involving the home and the school in the therapeutic process instead of emphasizing one to three hours per week in psychotherapy; it provides a program which schools can absorb into the mainstream of ongoing education without violating the professional role of the educator. The supporters of such a philosophy of educating emotionally disturbed children do not believe that it offers a panacea; indeed, they plea for further research involving curriculum modification, techniques of presentation, and environmental control of factors which impinge negatively upon learning processes within children. The structured approach appears to be the most significant trend operating at this time as a philosophy for implementing therapeutic programs for emotionally disturbed children. However, complacency is not in order if we are to improve upon the fundamental concepts inherently involved within this system.

It is certainly a truism to state that we know a great deal more about behavior than we put to practical use in our daily contacts with youngsters. With this thought in mind, it is appropriate to review some contributions, old and new, which appear to provide information relevant to our responsibility of providing positive education experiences for emotionally disturbed children.

Of considerable interest is the revival of the teaching procedures advocated by Maria Montessori. This remarkable woman developed the concept of the "prepared environment" which presents ordered patterns, and disposed the child to develop at his own level and according to his own capacities. The teacher prepares the environment input factors, offers the child appropriate stimulation, and directs the activities toward successful completion and understanding. Competence in learning breeds self-confidence, and enables the child to learn how to learn as he masters skills so important to a successful and fruitful life.

Before reviewing some implications for future planning, we should discuss for a moment the disease concept of emotional disturbance. This concept is an artifact emantating from the medical profession which is concerned with diagnosing and curing illness. Once the illness is cured, the patient is again normal. For emotional disturbance this notion may be grossly erroneous. We are dealing with behavior, not a disease entity, and so-called curing of an emotional problem does not in turn establish normal behavior. For many children, productive behavior has never been a condition present in their lives. We, as educators of this group of exceptional children, must be concerned with promoting adaptive, positive behavior, and not with curing some esoteric abstraction of a disease.

Recent research studies with lower animals suggest that the dichotomy of nature versus nurture may not be completely relevant. One group of animals was provided with enriched experiences; a matched group was subjected to an impoverished environment. The results indicated that animals exposed to organized, controlled, enriched experiences, not only did better on problem solving tasks than the impoverished group, but also developed heavier, thicker cerebral cortices, and greater total chemical activity throughout the brain. Thus, the anatomy and chemistry of the brain appear to be more responsive to experience than had been supposed. The implications of these findings for developing appropriate educational experiences, especially for young children, are readily apparent.

Other experimental studies indicate that disruptive, disturbed, deviant behavior may be caused by deprivation of stimuli; or it may also be triggered by excessive stimuli. The behavioral effects of these two extreme positions along the continuum are quite similar. Deprivation mey be likened to rigidity in the environment; very little information goes in, and responses are blunted or inappropriate. Excessive stimulation is analogous to extreme inconsistency in a total situation. In reviewing case histories of disturbed children, the amount of inconsistency, or rigidity in some cases, present in their lives explains many of the behavioral learning deviations they exhibit. Clues for proper educational planning may also be discovered in studying such processes.

Quay's recent application of the known principles of learning to a possible educational treatment plan for emotionally disturbed children should be explored. He believes that symptomatic, disturbed behavior can be delineated into two broad categories which are described as the acting out, and the withdrawn syndromes of behavior. Quay states that these two major classifications of disturbance represent distinct groupings in terms of educational planning.

Withdrawn, anxious children tend to be conditioned readily to fear-producing experiences which quickly generalize to other stimuli that may not be noxious or even related to fear-producing stimuli. Defensive action of this type usually interferes with the acquisition of academic skills; i.e. complex learning. Because of this ease of conditioning, these children should be placed in a classroom situation where learning is associated with pleasant, rewarding positive stimuli. As Quay suggests, programed learning which provides for successful efforts, and breaks down complex tasks into sequential bits of information may provide the model for deconditioning generalized anxiety concerning the environment.

Children with acting out problems, the other major category, are unlikely to associate behavior with its consequences, i.e. they learn conditioned reactions very slowly. Educational programs for these youngsters, Quay recommends, should encompass a structured system of definite rules for conducts, with consistent rewards or consequences for specific behavior. In the initial phases of the program, the positive and negative reinforces for behavior would have to be quite obvious, and readily connected with the prior behavioral response. Pairing verbal reward with these more primary consequences might enable acting out children to learn impulse control and to adapt their behavior to the requirements of the situation.

Quay believes that we should investigate the merits of these two approaches. He indicates that educators planning special classes for emotionally disturbed children should be cognizant of the known factors intrinsic to learning theory, and what we have discerned about the learning characteristics of emotionally disturbed children.

Quay's review of the literature and his own research in this particular area have definite, far-reaching implications for the educator. In order to alleviate or reduce the debilitating effects of disturbed behavior, educators could more profitably spend their energies working with learning theory as it applies to behavior therapy, rather than attempting to delve into the vast maze-like regions of hypothetical, covert conflicts and complexes.

Michael's work has particular relevance to the problem of providing positive learning experiences for disturbed children. Teachers often complain that motivation, attention span, etc., are grossly inadequate or stunted in disturbed youngsters. A variety of reasons are offered for this apparent lack, but it seems rather incongruous to experimental psychologists who apply known principles of learning which enable lower animals to work constructively for long periods of time. Limited attention span and other observed learning characteristics of disturbed children are sometimes verbalized by educators as a post mortem explanation of failure to maintain desired productivity or positive behavior. In reality, the probable cause for such discrepancies are due to failure to control the relevant variables, i.e. programing of stimuli and reinforcement. Michael states: "Most cases of short attention span that I have observed are cases of weak reinforcement for the desired activity." Michael believes that the difficult problem in planning learning, therapeutic experiences for disturbed children is in the discovery of effective reinforcers. For example, the reinforcement techniques used in some classrooms take the form of verbal approval, additional complex learning tasks, and escape or avoidance of aversive conditions. The reinforcing effectiveness of these events for a particular child is not usually known; and indeed may have no bearing upon instigating appropriate responses at all. In order to maintain intensive work for a number of hours per day, for many, many days, and this may be what is needed before a disturbed child can overcome his disabilities, the problem of effective long term reinforcement for each child must be solved. Michael sees a possible solution in the development of a "token" reinforcer system. Without going into the details of how such a program would function (it is detailed in the literature), it is only necessary to state that it is a system in which desirable rewards are obtainable only through the exchange of tokens, which in turn are garnered as reinforcement contingent upon behavior which the teacher wishes to promote or maintain. Tokens could take many forms, but it is important that the children retain a record of their accumulated wealth so that they can observe progress toward the desired reward.

This type of educational programing, plus aspects outlined in Quay, may be necessary to enable emotionally disturbed children to receive the long-term remediation processes so vital for a return to the somewhat chaotic adventures of daily life. However, much of the work accomplished by experimental psychologists has involved individual programing. We, as educators, cannot afford such luxury. We have to devise, discover, and develop appropriate methods of translating such findings and apply them to group processes. This area could possibly offer stimulation for sophisticated educational research. Criticism and accusations of creating automatons through the use of such procedures are not justifiable. We need only to examine our own motivation for engaging in certain tasks in order to see the appropriateness of such a system. Also, it has been observed that self reinforcement, and environmental variables may operate to motivate sustained productive activity long after short term rewards lose their significance. One has to have many experiences with small successes before it is reasonable to expect delay of gratification in favor of reaching long term goals.

This all too cursory review of the past, and some reflections about the future hopefully will shed some illumination upon the gigantic problems which still need to be resolved before we can meet the needs of emotionally disturbed children. Planning programs for these youngsters is an expensive process in terms of money, people, power, and time. We must be reasonably positive that the results of our endeavors will be commensurate with the total costs of such programs.

History may be defined as the narrative of anything man has thought, said, or done in the past. Man is a time-binder; he can review his past, build upon prior successes, and reject previous mistakes. It is important to remember that progress is shaped somewhat like a ladder; in order to climb upward, a lower rung must be present as a supporting base. The positive developments in our particular profession have been constructed upon, and have depended upon experiences recorded by those who labored in years gone by. In our subsequent efforts we must use past knowledge wisely and constructively if we are to impinge positively upon the disorganized, anxious, painful lives of emotionally disturbed children.

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REHABILITATION

VOCATIONAL REHABILITATION RESEARCH IN COLLABORATIVE SPECIAL EDUCATION AND REHABILITATION PRACTICES

Charles S. Nicholas

The principal goal of the Vocational Rehabilitation Administration is to rehabilitate physically and mentally handicapped individuals so that they may, to the extent possible for them, overcome the vocational limitations imposed by their disabilities, and prepare for and engage in remunerative employment, thereby increasing their social and economic well-being as well as the productive capacity of the nation. A wide variety of disabilities is represented among the individuals served: for example, neurological impairment, mental illness, deafness, mental retardation, speech impairment, blindness, epilepsy. Services are also offered to such groups as the chronically ill, the aged, juvenile delinquents, and alcoholics. Three different, but interrelated, approaches are used by the Vocational Rehabilitation Administration in working toward its goal: assistance to State Divisions of Vocational Rehabilitation in providing programs of service to the disabled, support for training of professional workers in various rehabilitation fields, and grants in partial support of research that is relevant to rehabilitation. We will be concerned with the research program in this paper.

Support is offered to three kinds of projects: research, research demonstrations, and selected demonstrations. To describe them briefly, research projects are concerned with developing new techniques and devices as well as unique procedures, and with obtaining new information that adds to existing knowledge of rehabilitation and/or increases its effectiveness. Research demonstrations apply research results to operational problems in order to demonstrate their usefulness. Selected demonstrations, as their name implies, select and incorporate the best features of especially useful and promising research demonstration projects. The selected demonstrations are then formalized in prototypes or guides and placed in strategic locations throughout the country. Thereby, a community is enabled to introduce new methods or programs of service which have been developed in earlier research.

The research and demonstration program of the Vocational Rehabilitation Administration began in 1955 with a budget of less than $300,000 and 19 research and demonstration projects. During the succeeding nine years, approximately 700 research and demonstration projects and 140 selected demonstrations have been given financial support. At present, some 450 research and demonstration projects and some 100 selected demonstrations are in progress with annual support of $16,000,000.

The majority of VRA-supported research and demonstration projects have been concerned with problems in the rehabilitation of adults and older adolescents because of interest in restoring the disabled to employment. Among the studies including minors, emphasis has been on prevocational, personal adjustment problems, on services complementing special education programs, and on guidance, training, and placement, except for a very small number of basic research or special projects with children of grade-school age. Of the 450 VRA projects now in progress, 59 are concerned exclusively with the problems of handicapped youngsters. Distributed by categories of disabling conditions, seven projects are in the area of emotional disability including juvenile delinquency; nine are devoted to research in problems related to various physical disablities other than sensory; 12 are in speech and hearing; four in blindness; and 27 in mental retardation.

Within the time allotted, I cannot review this extensive research effort. Instead I shall comment on some current projects in different categories of disability, to give you an overview of the present program as it concerns youth. As well as projects specifically concerned with collaborative efforts in special education, I will discuss research and demonstrations of general relevance to special education in that they may offer curricular and teaching implications.

Let us consider first some studies of sensory disabilities. In the case of the deaf, sensory deprivation is reflected in qualitative differences in conceptual, cognitive, and learning processes. To better understand the conditions which facilitate learning, Dr. James Youniss of Catholic University is studying the parameters of acquisition of learning in nonretarded deaf and hard-of-hearing high school youngsters. This basic research may be expected to supply information about how deaf individuals cope with language in acquiring learning.

A project conducting basic research on the cognitive development of deaf children is in progress at the Clarke School for the Deaf in Northampton, Massachusetts, where Dr. Solis L. Kates is investigating the conceptual abilities of deaf adolescents and contrasting the development of these abilities in the deaf with those in hearing subjects.

An interesting example of developmental research is under way at Wayne State University under the direction of Dr. George A. Kopp. A visible speech translator, an electronic machine which transforms acoustic energy into a moving visual pattern on a screen, is being used to teach speech to deaf children by providing a visual feedback of speech production to replace the auditory feedback which hearing children use but which deaf children do not have. As the deaf student learns to monitor his speech and self-correct it through visual feedback, there is a likelihood that his speech will improve. In addition to training the student to recognize, discriminate, recall, and reproduce the visual patterns portrayed as he speaks, the research proposes to identify the requisites for these skills.

The Vocational Rehabilitation Administration is supporting an extensive research program for the visually handicapped including the blind. Among the projects are some which are applying knowledge in electronics to the development of sensory aids and communication devices for blind persons. For example, Wayne State University is developing a method for translation of inkprint into Braille through the use of electronic computers; the Massachusetts Institute of Technology is now developing prototypes of typewriters hooked up with electronic systems that will produce Braille copy. With a typewriter keyboard input anyone with typing ability can produce a form of Braille copy. Thus the classmates of blinded students could supply much of the Braille copy. A blind member of an office group could have available to him a typed and Braille copy. A blind typist could use an adjunct Brailler as a device for allowing him to proofread his typing.

The Massachusetts Institute of Technology, The Franklin Institute, and the Stanford Research Institute are developing prototypes of electronic canes that show promise as aids to assist blind persons in independent travel. Our program has provided support for some 30 optical aid clinics and selected demonstrations to conduct mobility instruction programs.

The optical aid clinics are based on programs developed by the Industrial Home for the Blind in Brooklyn, Catholic Charities in Chicago, and Alameda County, California, and are designed to increase the visual acuity of individuals currently classified as blind. A substantial portion of the clientele of the optical aid clinics are children. The mobility instruction and orientation programs developed for adults have had such striking success that we have been encouraged to support two demonstration projects to determine if similar techniques can be used with children. A little less than two years ago Catholic Charities undertook a research demonstration to provide orientation and mobility instruction to youngsters at the junior high school level. Orientation training is given to children at home, in the classroom, in the school building and its environs, and is followed by mobility training in the home neighborhood, business districts, and shopping areas. Another project with the same aims, this one conducted by the Los Angeles State College Foundation, envisages setting up a master plan to provide orientation and mobility training for all blind children in the Los Angeles metropolitan area.

Very early in our research program there was a recognition of the need to provide programs to young persons in order to reduce at an earlier age the effects of disability and so enhance the possibility of adjustment to later vocational life. Projects of this type now under way involve high school youth from age 14 enrolled both in special and regular classes. These projects are experimenting with a variety of program services to meet special educational, physical, emotional, social, and vocational needs.

An example is the project of the Vocational Couseling Service of Greater St. Louis, which features extensive evaluation and intensive vocational counseling to handicapped high school freshmen. Developmental, medical, and psychological information gathered in counseling is shared with the school and used for long-term educational planning.

To assist severely physically or emotionally handicapped youngsters to meet vocational expectations and increase their work readiness, the Federation of the Handicapped in New York City is conducting a demonstration of prevocational training while these individuals are still receiving home instruction.

Research programs for physically handicapped youngsters involving public school and special education personnel are in progress in various parts of the country: Michigan, Oklahoma, Rhode Island, and Maryland. The research in Maryland, conducted by the Montgomery County Public Schools and under the direction of Dr. Samuel Goodman, proposes some unique educational innovations. This research will develop a program of secondary school instruction for handicapped pupils in which the critical element will be a planned sequence of work experience outside the school and around which the total curriculum of the pupils will be structured. Students will receive an increasing number of hours of on-the-job training in industry each year. Both the out-of-school and the in-school instruction in each year of the program are oriented around a central motif: in successive years, respectively, employee oriented, then industry oriented, then skill oriented, and finally, career oriented. During the first year students will be provided 16 hours of on-the-job instruction in each of seven different occupational areas; in the second year, 32 hours in each of seven areas. In the third year pupils concentrate in two areas; and in the fourth in one area, for a total of 224 hours per year. The on-the-job instruction, by industry personnel, is complemented by a coordinated program of vocationally oriented in-school instruction.

Mental Illness

In the area of mental illness, the VRA is supporting a number of projects for the rehabilitation of emotionally disturbed adolescents. One of the earliest supported in this field is the research demonstration of the Butler Health Center, Providence, Rhode Island, which established a day-care rehabilitation center for emotionally disturbed adolescents in a psychiatric setting. The purpose is to provide a psychiatrically beneficial and economic alternative to in-patient treatment and with a setting for prevocational and vocational rehabilitation. One goal of this research will be a comparison of adolescent and adult case histories and the range of life crises that adversely affect motivational and adjustment potential.

A project under the direction of Dr. Merle B. Karnes, Champaign Community Unit 4 Schools, Champaign, Illinois, is in process to test the effectiveness of a prevocational curriculum designed to rehabilitate slow learners who are prone to school dropout and delinquency. This research proposes differential treatment of four groups of school children: one group receiving a combination of work experience and a special curriculum oriented toward work; a second group receiving the prevocational services but not the special curriculum; a third receving the special curriculum but no prevocational services; and the fourth receiving a traditional curriculum only. The differential treatment procedure is designed to test the efficacy of the combined prevocational curriculum and prevocational services.

The New York State Division for Youth is currently conducting pilot programs to demonstrate new approaches to the rehabilitation of emotionally disturbed and delinquent youth. Three types of programs for youth between ages 15-17, providing work, education, and therapeutic experiences, have been in operation for a year. The first is the Short Term Adolescent Resident Training program. It is a supervised residential treatment center with minimum regulations and designed to create an atmosphere of rehabilitation on the basis of intensive group therapy. The second is the Rehabilitation and Opportunity Camps program, stressing vocational rehabilitation and training, remedial education, and group counseling. Accelerated instruction will be provided and standards will be sufficient to enable these boys to re-enter school upon return to their homes. Recreational activities will be scheduled and emphasis will be placed upon learning through group experience. Competition will be balanced with team cooperation. Stress will be placed on cultural activities and youngsters will participate in arts and crafts as well as other means of self-expression. The third type is the Urban Residence Homes program intended to keep youths in the community and help them function more adequately within it. The youngsters work and/or attend local schools while living in supervised residence. Group therapy, vocational and educational guidance, and job placement are provided. The differences in the programs are in the type of residence, the degree of supervision within the residential setting, and the varying degrees of social as opposed to psychological and therapeutic experiences that are provided. The Vocational Rehabilitation Administration is supporting the research to evaluate the effects of the three types of treatment. It is anticipated that this research will provide insight into the underlying dynamics of delinquent behavior and identify the treatment techniques that are most successful with different types of delinquent adolescents.

Mental Retardation

The Vocational Rehabilitation Administration research program has pioneered in the improvement of methods of evaluation, training, and placement of retarded persons and in the introduction of new methods and services for them in many communities throughout the country. The progress achieved is reflected in the increasing number of mentally retarded rehabilitated by the State Rehabilitation Agencies. In future years, we anticipate an increase in the absolute number as well as in the proportion of mentally retarded who will be rehabilitated and placed in employment. In no small measure this dramatic growth in rehabilitation has been facilitated by research.

Among the projects in mental retardation that we are currently supporting is a research demonstration sponsored by the United Association for Retarded Children, Milwaukee, Wisconsin, which involves parents in a workshop program for their retarded children. Initially, assessment is made of some of the common problems which parents may perceive in their children, of parental knowledge of traits possessed by children that are particularly pertinent to vocational role behavior, such as attendance at the workshop, perseverance, work speed, work quality, co-worker relationships. Through exchange of information between workshop supervisors and parents and occasional parental participation in workshop experiences, parents become valuable adjuncts in reducing adjustment problems related to vocational role behavior. A special education program is also provided to acquaint them with the nature of the conditions that are handicapping their children. This program, in the form of lectures, shows parents how they can cooperate best with the workshop, how they can give recognition to their children's improvement, and how they can help the child develop social skills and find and keep a job. It also aids parents in developing do-it-yourself projects to encourage independence in their retarded children.

Training methods to improve the social adjustment of the retarded have been given increasing support by our research program. I would like to describe two recent ones. The first is a research sponsored by the University of Kansas and conducted by Dr. John Cawley and Mrs. Barbara Edmonson to develop a method of testing and training the social insight of mentally retarded youth. By increasing awareness of relevant cues and

and appropriate responses, can they extend the child's ability to adjust in vocational and community living? Initially, a social-perceptual acuity or insight test will be developed to measure the retardates' ability to observe and interpret behavioral cues to another person's social motivation and thought. This test will consist of a set of pictures on various aspects of interpersonal behavior. It will be tried out on normal high school students and refined on retarded adolescents. Following this, a training program for retardates will be developed, in which retarded subjects will be taught to distinguish, correctly interpret, and act on cues of the sort portrayed in the picture social-perceptual acuity test. Training will be effected by means of slides projected in individual and group training sessions and used as a basis for discussion.

The second research illustrates the application of a motion picture training technique for promoting social development and personal adjustment in the mentally retarded. The project, conducted at the MacDonald Training Center Foundation, Tampa, Florida, under the direction of Dr. Calvin M. Pinkard, proposes to evaluate three different methods of group counseling in which the discussion leader uses for discussion material a film of recent interaction among a group of retardates. In Group A the members will see and discuss a film of their interaction the day before. In Group B the members will discuss a film of another similar group carrying on the same activity as their activity of the previous day. In Group C the members will discuss their previous activity without viewing a film. It is hypothesized that the motion picture feedback on a group's own members (the self-image confrontation technique) will be the most effective method of the three for the improvement of social behavior.

Follow-up studies and reports about the mentally retarded have repeatedly indicated that the retarded lose jobs more often by their failure to adjust to a work situation than by their inability to perform given jobs. These findings affirm a persisting need to provide work experience training before the retarded individual leaves school. These young people must be provided with suitable prevocational experiences, suitable vocational training activities coupled with special education techniques, and suitable employment. Acceptance of the need for this type of educational provision has resulted in a large variety of projects demonstrating an integration of the services of the school and community agency. There are too many projects of this kind to describe in detail, but I will mention a few.

A demonstration project of the Kent County Board of Education, Grand Rapids, Michigan, is noteworthy in that it proposes to combine many small school districts within a county in a cooperative centralized program better able to meet the needs of the mentally handicapped students in high school and, at the same time, to incorporate a program of work experience and on-the-job training with a socially and vocationally oriented educational program.

Another project, sponsored by the Occupational Center of Essex County, Newark, New Jersey, provides retarded youngsters enrolled in special classes in the Newark school system with a two-day-a-week program of evaluation and personal adjustment in the workshop of the Occupational Center. Here, too, vocational counseling, remedial educational work, and a course in occupational information will be given. A feature distinguishing this project from the previous one is the addition and participation of the state DVR to provide further industrial training and placement.

The introduction of vocational training to supplement educational programs is nothing new. About a generation ago, vocational concepts were introduced into the public school curriculum in the form of occupational education. The problem is in negotiating successfully the transition from school to adjustment in an occupation. To facilitate this transition, the VRA has developed two guides for types of selected demonstrations illustrating how a coordinated program of special education and concurrent work experience can help the mentally retarded student for employment in the community. Both selected demonstrations are based on methods developed by earlier research demonstrations supported by VRA. We have designated these as the B-2 and B-3 Guides for Selected Demonstrations.

The B-2 selected demonstration is largely modeled on methods and techniques of prototype projects, one of which was sponsored by the Texas Education Agency, Austin, Texas, under the direction of Charles Eskridge, and the other sponsored by the Minneapolis Public Schools and directed by Dr. Evelyn Deno Reed. In essence, these demonstrations provide for coordinating unit within the school (consisting of consultants from the Division of Special Education and the Division of Vocational Rehabilitation) which assume responsibility for provision of continuous and uninterrupted educational and vocational services to retarded students. The unit provides no academic course work, but as part of the school, does make recommendations within the school system for modification of education programs. Its focus, however, is on vocational matters and it operates in a work-related setting. Students who are viewed as potential dropouts or appear to be no longer benefitting from instruction are referred to the unit by their special class teachers or school counselors. Here they undergo a comprehensive evaluation. History and background of the student, standardized tests, classroom observations, performance on work samples, are some of the techniques used. Results are interpreted to parents and they are asked to help in planning. The unit carries central guidance responsibility. A series of work stations established within the school provides on-campus job training. The work station vocational experiences are part of the total evaluation-guidance program. Job stations are also developed in the community in which students work part-time. Employers are part of a continuing evaluation-tryout-training program. Students thus are continuously evaluated and are moved in or out of jobs depending on their ability. After sufficient time has been spent in the program to allow for adequate assessment, the retarded youngster is placed in a permanent job and followed up until he is ready to continue full-time work without further unit supervision.

The second selected demonstration, the B-3, is also a work experience program for the mentally retarded while still in school. This selected demonstration is based on research demonstration sponsored by the Jewish Vocational Service, Milwaukee, Wisconsin, and directed by Michael Galazan. It also proposes a plan whereby a Department of Special Education and a State Rehabilitation Agency join in a cooperative service to retarded who are not less than 16 years of age in their last year of school. In its joint planning between a school system and the rehabilitation agency, as well as in procedure and methodology, this demonstration is similar to the one above. It differs in that the evaluation and work experiences are centered in an established community sheltered workshop. Students attend school for half a day and receive concurrent work experience training at the workshop during the other half. Students participating in the program undergo a three-month evaluation based on information from the school, parents, teachers, and on their performance of sample tasks as well as work in the workshop. Following work evaluation, the students are provided training in any of the following areas: bench work assembly, service maintenance, commissary and domestic service, internal and external messenger work. Vocational trips are provided for a first hand view of people at work. Associated training in job getting techniques, functional sign reading, and independent travel is given. Financial and status rewards are provided as incentives for production and reinforcement of work habits. Individual, group, and parent counseling are parts of the program. At the end of each training cycle, trainees judged ready for employment are staffed for placement.

The guides for these selected demonstrations have been made available for replication of these programs throughout the country. There are now, less than one year after the guidelines were established, nine such selected demonstrations operating with VRA support in various parts of the country. Moreover, additional funds have been set aside to give priority for applications to establish additional projects of this type.

As I conclude my remarks I feel that I have written of only a small segment of the total VRA research in behalf of children. By describing some of our research, I tried to underline the manifold problems requiring solution and the role of VRA research to provide the answers. We do not have all the answers we need; even though much has been done, much still remains. We look forward to further efforts of researchers and to those like you who have a continuing interest in the adjustment of disabled children for support in our efforts to acquire new knowledge and devise new methods to promote the adjustment of handicapped youngsters so that they may as adults occupy their rightful place in a free economy.

COLLEGE PREPARATION FOR CURRICULUM NEEDS IN SPECIAL EDUCATION PROGRAMS PROMOTION REHABILITATION

William J. Younie

One of the most frequently voiced goals of special education is that the school experience should help the handicapped child achieve the highest possible degree of independence so that he may eventually contribute to adult society within the limits of his capabilities.

Trite or not, the hopes embodied in this statement are before us whenever we plan a handicapped child's education. These hopes are interjected into the structure of curriculums for the exceptional child and underlie the orientation of teacher education programs in special education. The teacher in-training, and the teacher in-service are reminded that their program goals must be realistic, their materials meaningful and their planning individualized so that their eventual purpose, the successful rehabilitation of the handicapped, may be realized.

The teacher's attention to preparing the handicapped for life appears generally to be fruitful. There are many examples in the literature and in practice which document the successful role played by the teacher in the rehabilitation continuum (Eskridge, 1962 - Mosher and Stewart, 1958 - Rusalem, 1959).

After reviewing other references, however, one may arrive at the disquieting conclusion that vocational rehabilitation's full force is blunted at times by the teacher's lack of preparation for and failure to be included on the total rehabilitation team (Fraenkel, 1961 - Usdane, 1959 - Wolinsky, 1961). This conclusion is further strengthened by the expressed feelings from rehabilitation counselors and special educators. They are not entirely clear as to what interrelationships do or should exist between their programs. Nor are they always in agreement on common goals (Mayyers, 1962).

Since its inception, rehabilitation has been closely allied with education. In many states the rehabilitation agency operates under the auspices of the department of education and vocational counselor training programs frequently are centered in schools of education. Unfortunately, this close affiliation has not insured that educators will come to understand rehabilitation concepts or prepare students to make full use of available services.

One of the reasons for muted communication is the basic difference in task orientation between the teacher and the counselor (Rusalem, 1959). The teacher tends to view the child developmentally. He has long range goals, the effectiveness of which he has no way of testing. The counselor works with the handicapped person in a more self-contained and self-completing situation where long range goals usually include him as a participant.

A related problem is the varied way in which special education and vocational rehabilitation view their function in the individual's life.

The teacher imparts a certain body of pre-determined knowledge.

The counselor works with immediate knowledge drawn from a study of the client.

The teacher relates to the individual within a group setting.

The counselor's major preparation is predicated upon the fact that he will relate to one individual at a time.

The teacher learns to present material in a fairly definite manner that has been determined by experience and research.

The fact that he draws his material from the immediate situation makes it mandatory for the counselor to be able to present information flexibly so that appropriate choices may be made.

The teacher measures the child's progress in terms of age, grade, or other well defined norms.

The counselor measures the adult's advancement in terms of his actual progress from one stage of adjustment to another.

Each of the differences in approach between special education and rehabilitation is consistent with their individual philosophies. It would be a mistake to alter the basic approach of teacher or counselor to achieve a closer working relationship. However, it is necessary to identify common content, examine specific misunderstandings, and develop a continuous program so that "the child should grow into the man." (Longfellow)

Toward this end it is proposed that specific rehabilitation content be included in teacher preparation programs in special education. This proposal is related closely to past suggestions for improving the curriculum for teachers of the handicapped and is unique only in its specific mention of rehabilitation (Cain, 1964 - Goldberg, 1957). It is felt that inclusion of rehabilitation content would better prepare teachers for their unique task of curriculum building and help make them more effective members of the vocational rehabilitation team. This content would not prepare teachers to be counselors but would lead them to a better understanding of the counselor's function.

The first priority is to identify the teacher's role in the rehabilitation process. The teacher is expected to impart certain social, cultural, and academic information to his students. He should be able also to evaluate what importance the child gives this information and what effect it has on the development of his self concept and his relationships with his environment. The teacher must learn to provide those experiences indicated by his study of the child even though they do not complement his concept of the traditional curriculum.

Frequently, the handicapped show greater than normal teacher dependency. This is due in part to family and peer rejection. Also, dependency may be fostered by the closer personal contact which the smaller special class encourages. The teacher has to be prepared to accept the guidance role such dependency entails. He requires facility and basic guidance techniques and full awareness of his referral responsibilities. He must know his limits and refuse to become involved beyond the bounds imposed by his skills and the accepted standareds of good guidance practice. A knowledge of current school resources and their applicability to his group will facilitate referrals for the special teacher. In the matter of available resources, attention should be given also to the function of special schools and institutions for the handicapped.

Orientation of the handicapped to the sometimes cruel but necessarily normal world must be a continuous part of his school experience. The teacher may facilitate the adjustment by knowing how to integrate the special class into the regular school. Particular attention should be given to developing a good professional relationship with special subject teachers.

The ability to communicate with other rehabilitation disciplines is a definite rehabilitation function for the teacher. At whatever level he works he requires practical inter-disciplinary knowledge which includes a general delineation of the responsibilities assigned to various rehabilitation team members, a description of their rehabilitation terminology and operating procedures, and an analysis of the problems which overlapping disciplines create.

The stress on working closely with others, while vital, should not obscure the teacher's unique and useful role. Nor can preparation ignore the teacher's place in coordinating the work of various rehabilitation services that are related to his classroom instruction.

The preparing institution, in addition to identifying the teacher's rehabilitation functions, is responsible for developing his ability to plan learning experiences appropriate to rehabilitation goals.

One concept underlying the development of instructional materials is that vocational rehabilitation orientation is a continuous element in the child's school life. While specific attention to job material is concentrated in the junior and senior high school there is no magic age at which vocational rehabilitation begins. The primary and intermediate grades may be considered to be a readiness period during which general skills are developed. It is important that these general skills be recognized by the teacher as having eventual vocational significance and not merely as material that is traditionally taught.

The college must prepare teachers to make decisions on instructional emphasis for the handicapped child who has neither time nor capacity to achieve the content of the standard curriculum. In retardation, for example, the teacher must decide when to discontinue developmental reading to pupils who read poorly or not at all and substitute lists of common signs, vocationally oriented stories and other materials that have specific importance in adulthood. To insure that teachers will have alternatives to inappropriate curricula, colleges should provide continuous information on creative materials and methods and supply advice on the relative value of new teaching approaches and devices. The research by Stolurow (1960) on programed learning is an excellent example of available background material.

The achievement of rehabilitation goals depends greatly upon the attitudes developed in school. Many courses and printed materials document the psychological inferences of handicapping conditions. Little is available on how teachers may make curriculum provisions to communicate desirable attitudes about disability. How, for example, does the teacher plan for the fourteen year old student entering a special class for the first time who must adjust to a peer group with considerable special class experience? Or how does a teacher prepare a curriculum for the severely disabled cerebral palsied student who lives in a community which offers few productive opportunities for the adult handicapped? The teacher needs to know how to approach the development of rational realistic student attitudes if he eventually expects to make an intelligent referral to the vocational counselor.

Teacher education has a concern also for developing in trainees the ability to think and plan positively fôr the student whose vocational future is postponed or severely limited. Those students who are not eligible for formal vocational rehabilitation must be helped to find their place in the broadest definition of the term. With knowledge of team and community resources the teacher can play an essential part in preparing the more disabled student and his family for the difficult period of post school adjustment.

Just as we speak of a total plan for rehabilitating the handicapped, so too, must we be prepared to implement a total plan to introduce rehabilitation content in programs of teacher preparation in special education. To be realistic and far reaching a proposed plan should consider the following factors.

1. Rehabilitation content can be fully integrated into the total structure of a special education department and become an essential element of all basic courses in each disability area. This internal approach would seem to be the only one that would insure maximum assimilation.

2. In addition to being presented as part of various course offerings, rehabilitation content can be presented as an identified entity in a specific course offering.

3. Attention must be given to non-credit in-service offerings so that dissemination of rehabilitation content is not limited to teachers in a program of preparation.

4. Since the college instructor is the key to the entire proposal, he should be given a body of resource materials which are related directly to the introduction of rehabilitation content.

5. Rehabilitation counselors and other members of the vocational rehabilitation team have a contribution to make to the formulation of a teacher education curriculum. Their involvement should help them achieve a better understanding of special education and hopefully encourage the introduction of special education content in rehabilitation training.

The needs and suggestions elaborated thus far are obvious to many professionals. In an attempt to meet them, some special education programs have scheduled survey courses in rehabilitation. Instructors have included information on the Vocational Rehabilitation Agency. The concept of the team and similar material is an incidental part of introductory courses in specific disability areas. Surprisingly, there has been no systematic study of the problem or any co-ordinated effort to solve it.

To satisfy the apparent need for identifying and applying rehabilitation content in special education the Department of Special Education, Teachers College, Columbia University has initiated a research project in this area. The project is supported by a grant from the V R A and is co-directed by Dr. Frances Connor and Dr. I. Ignacy Goldberg. Through the project, an attempt will be made to identify rehabilitation content which has specific meaning for special educators, to present this content in ways that are in keeping with the administrative and curriculum limitations of teacher education programs, and to evaluate whether or not this content is assimilated by teachers and what changes it effects in their approaches to educating the handicapped.

The project is now in its first six months. It has been planned to span a period of three and one half years. During this period it is intended to offer well defined experiences in rehabilitation to teachers in-training.

Areas of concern for which specific rehabilitation content is to by identified include:

1. Knowledge of basic rehabilitation concepts and terminology that have specific reference to special education.

2. Understanding of the interrelationships necessary between the teacher and other professionals on the rehabilitation team.

3. Developing techniques and materials to better prepare the exceptional child for formal vocational rehabilitation.

The teaching settings into which the identified rehabilitation material will be introduced are also three in number:

1. Full length college courses.

2. In-service courses in local school systems.

3. Intensive three day workshops designed for those special educators unable to attend college or in-service programs.

The several settings used will permit conclusions to be drawn regarding the relative effectiveness of each approach. These conclusions will be arrived at by using several evaluation procedures. The major instrument used will be series of rating scales. These will be administered as a pre-test and post-test. Written evaluations of the free response type are also planned. An overall evaluation will be obtained by having selected participants meet in a one day conference at the project's conclusion.

As presently determined, the project will deal directly with approximately 250 teachers during each year of its operation. Through content introduced into other departmental courses it is expected that an additional 350 students will gain certain indirect benefits from the project. The special education staff also will be given direct exposure to the project. They will be reached through seminars on new developments in rehabilitation and special materials developed to introduce rehabilitation content to general course offerings.

One of the most important outcomes of the project will be the preparation of materials which may be used by other college programs interested in expanding their ability to provide rehabilitation content for special educators.

If we are to prepare the exceptional child to face adulthood to the full extent of his capacities we need to continually expand ours. From this review of the need for introducing rehabilitation content in special education and from the brief description of the Teachers College program, it is my sincere hope that such expansion in this all important area has at least begun here at this convention.

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